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THE INTERNATIONAL CENTRE FOR POLICY STUDIES is an independent, non-profit research organization with the objective of improving the Ukrainian policy development process. This is achieved by increasing the know-how of key government officials for policy choices, formulation, and debate, and the awareness of the public-at-large of the benefits of the policy. ICPS focuses on key programs of importance for the reform efforts of the government.

Foreword

In this issue of **POLICY STUDIES** we continue the topic of our previous issue, w7here the economic strategy of Ukraine has been discussed. The authors argued that Ukraine could not return back to the virtual stability and prosperity of the Soviet Union.

However, a lot of Ukrainian people think of return. Stable prices, guaranteed jobs and wage and beneficial social network remain in the memories of thousands regarding "developed socialism" during the 70-80s. But stability of the system and levels of welfare are a question mark.

Answers to these questions we found in the works of Yehor Haydar, a well-known Russian economist, who, being a Prime-Minister of Russia for two years, headed the country toward the market. In this issue of **POLICY STUDIES** we present chapters 3-5 of his book "Anomalies of Economic Growth", which was published in 1997, but has been almost unknown in Ukraine.

We extend our thanks to Mr. Haydar for permission to use his work, as well as to Mr. Natarov, Director of his Press Service, for his assistance in preparing this issue of **POLICY STUDIES**.

Typical Features of Socialist Growth

Removing market mechanisms and substituting them with an integrated hierarchy allows for extending possibilities of maneuvering the savings rate rapidly, increasing the dimensions of resource redistribution from traditional agriculture, and obtaining a high growth rate of the share in industry and industrial production volume.

The Socialist model of development[1] that was shaped during the end of the 20's and beginning of the 30's in the USSR was based on the model of import substituting industrialization. The model highly influenced the national way of development by moving it aside from prevailing world trends on decades.

Let us take a closer look at the facts that caused the first such transition in the history of economy in the USSR at the end of the 20's.

World War I helped terminate the traditional monarchy that led to the Revolution and Civil War caught Russia at its highest level of early capitalistic crises (GDP per capita in 1913 was $1500 per capita evaluated in prices of 1990, considering the parity of spending power). P. Stolypin was more than correct when at that very stage of development, he was asking for 20 years of peace and stability for Russia. When the post-revolutionary Russian period of storm and pressure from the Civil War dissolved in NEP, when they succeeded in stabilizing the chervonets (currency) and revival of national economy began, it became obvious that the newly formed economic situation obtained traits of a market economy.

As early as spring 1918, master and ideologist of Russian industrialization professor V. Grinevitski turned his

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[1] The most popular works dedicated to analyses of the socialist model from a liberal standpoint are still "Way to Slavery" by F.A. Haek (Moscow 1993) and "Socialism" L.F. by Mizes (Moscow 1994). Out of contemporary works that sum up the results of socialist experiments, the most far-reaching to my mind is research by J. Kornai: Kornai J. *The Socialist System. The Political Economy of Communism.* Oxford, 1992.-Among works dedicated to discovering reasons of radical differences in economic dynamics at different stages of socialist development, I would like to note: Banarjee A., Spagat M. Productivity Paralysis and the Complexity Problem: Why Do Centrally Planned Economies Become Prematurely Gray? – *Journal of Comparative Economics* 1991. Vol.15. P.646-660; Sachs J. Notes on the Life Cycle of State-led Industrialization. - *Japan and the World Economy.* 1996(8). P.153-174.

attention to the fact that in the Russian revolution socialism is just a shape, and essence is bourgeois[2]. Nevertheless, socialist slogans closer to the middle of the 20's thought persuasion about the revolution, which turned out to be bourgeois in its social and economic content, is strengthened both in Russian and in emigrant liberal professors' minds.

In the country works a developed system of markets. The basic factor of economics is the private economic sector (peasant farms, private industry and trade). Displacing the traditional monarchy with revolutionary, a modernizing totalitarian regime appeared. Inherited from Russian traditions were financial stability (which was based on the golden chervonets), expressive protectionism, and active government participation in economic development. The most essential innovation monopoly on external trade shows a definite turn to the way import displaced industrialization.

Evidently the winner in the Civil War at that time was the peasantry. They were freed then from food apportionment (prodrasverstka) and retained landlords' land. Curbing the financial pressure that suppressed the peasantry[3] showed in peasants' consumption[4], sharp cutbacks of exports partly in farming, in comparison with the prewar level. Lack of foreign currency and limited opportunities for import were permanent and essential problems of the Soviet economy. The monopoly on external trade allowed for strictly limiting consumer imports. But growth in peasants' consumption did not allow food exports to increase to the prewar level. All attempts to force it only overbalanced the financial system and internal market mechanisms.

This led to inevitable problems of evolution, which appeared as soon as the very superficial reserves of national economic revival were used up. And there was the problem again: how to overcome strong lags in comparison with mature economies of the West that had arisen during the war and during the revolution? The missionary style of the Bolsheviks' ideology, interpretation of existence in terms of

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[2] Grinevitski V. *Outlooks of Postwar Revival in Russian Industry*, Kharkiv, 1919

[3] Part of land tax and defrayment for land in earnings of peasant farms curtailed from 9.5% 1913 to 4.9% 1926/1927. See: Davis R.(ed) *From Tzarism to the New Economic Policy*. London, 1990

[4] In 1913, 22-25 % of produced supplies left the village, and in the middle of the 20's such flow slowed down to 16-17% (ibid)

fights between capitalism and socialism, and anxiety to lose power did not allow them to postpone the decision[5]. The main structural and technological priorities of development were determined by examples of mature economies and by Russia's resources. They transformed from "postwar perspectives of Russian industry" by V. Grinevitski, through development of the GOELRO plan to the first five-year plan that was offered by the State Planning Committee: there is a strong necessity to recover the domestic fuel and power industries, to restore and update metallurgy, build up developed engineering industry, and reconstruct the prewar volume of railway building.

But where can these resources be obtained to implement all these projects? V. Grinevetski intended to use abundant foreign investments. However, by the middle of the 20's it was obvious that all attempts were in vain. Anti-capitalist slogans assigned by political competition were too strong. It was too recent since the Bolshevik government refused to pay the Tzar's debts and socialized the property of those companies that participated in foreign business. Even with all perspectives of Russian markets in mind, the risk is rather high. Therefore, there will be no more big foreign investments.

Peasant farms were one of the traditional dominant sources for forming capital in Russia. But the peasant nature of the revolution in combination with the socialist ideology makes its usage rather problematic.

Voluntary private investments from peasant farms stay low. Anti-capitalist propaganda makes active support for developing and strengthening peasant farms politically impossible. Even Bukharin, who understood this problem more than others, was forced to withdraw the slogan "Enrich yourself". As a result, recourse of peasants' savings growth created by land reform was strongly blocked. It is senseless to expect rational people to invest in industry development, risking being included in a politically suspicious list, and to be threatened with sanction and oppression. As a result, peasant farms in the 20's became stable but not adjusted to voluntary savings and development of the national economy.

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[5] "We are 50-100 years slower than progressive states. We are to run this distance in ten years. Otherwise we are to be trampled." – J. Stalin. *Questions of Leninism.* M.: OGIZ, 1939. P329

The same problems block active production accumulation in the private sector of the economy separately from farming. Bolsheviks too often and too fervently apologize for allowing the existence of that very sector, expecting strong interest of private long-term investments. The seal of temporality, constant ideological and political threats of the bourgeois inspire short-term speculative trading and financial flow but not extensive private financing of the country's industrialization.

In a word, the way to dynamic capitalist growth, which fancies intensive activity of the nation's private sector, and a large private economy, was blocked for a long time by the Revolution and Civil War.

Complex financial problems were aroused in the state sector. Ideology (Dictate of Proletariat) forces raising wage levels. By the end of the recovery period, with labor productivity lower than before, revolution real wages were higher. With powerful protectionism and weak competition, industrial effectiveness was not high. The monopoly on external trade allows for overstating prices, providing profit even in case of low effectiveness. This caused constant conflict between village and city for prices on produced goods**.** The standard answer from the village is limited demand and a cutback on the delivery of farm goods.

In the framework of capitalism and the market being not very pleasant, one choice remains: a relatively low rate of growth and financial stability or attempts to force state investments at the expense of financial emission with inevitable consequences of inflation.

Hence, in 1925-1928 a constant fluctuation of economic policy appeared between inflationary financing and attempts to restore standard stability, acute discussions between the National Commissariat of Finance and State Planning Committee about possible rates and sizes of state savings, swelling financial instability, and inevitable problems in the functioning market mechanism[6].

The bread provision crisis of 1927, which served as grounds to reject NEP, was directly connected with attempts to force the rate of growth and keep the price of bread-stuffs low. As

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[6] Yurovski L. *Soviet Government Monetary Policy.* (1917-1927) Moscow, 1996. History of the Narkomfin and Gosplan conflict is vividly described in Mau V. *Reforms and Dogmas* (1914-1929). Moscow: Delo, 1993, pp.137-152.

in similar crises of 1923 and 1925, it yielded to being regulated with the help of the same methods (cutback in the savings and export volume of bread-stuffs, escalation of purchasing prices). At the same time it illuminated a key problem of the NEP economy, which lies in the inability to control savings directly and at the same time maintain market mechanisms. Such an economy and its assigned rates of investment growth are to be bought as something given. All attempts to influence it should be done by rather mild methods of market economic policy.

The choice of 1927-1928, which fancied real economic and political alternatives, is a choice of either continuing import displacement industrialization with its internal limitations on investment growth rates, or substituting market mechanisms by a huge hierarchy that would allow for controlling part of the savings in GDP directly.

In Russia, the communist government is in power. Private property and market for them is not a necessary condition for stable development, but a temporary bearable element of a highly hostile system of capitalist economy. It would be more correct to switch those regulators off, than to restrain industrialization if all attempts to force growth lead to instability, which hinders the work of the market mechanism. The answer to the savings crisis was secondary enslavement of the Russian village, and rough state savings growth at the expense of decrease living standards among the peasantry.

Artificially understated purchasing prices and sales tax on agricultural products became a substantial source of budget income. Further reduction in the consumption of foodstuffs in the village led to acute growth in agrarian export, which was to provide the currency reserves needed for an industrial spurt. Being formed for the first time was an integrative, logical internal structure of socialistic industrialization.

The temporary dismantling of market mechanisms, of course, is not a socialist invention. It was often used by capitalist countries in case of serious collision with severe external shock, i.e. with the war. To cover state expenditures which drastically increased from the war, compulsory use of people's savings was needed. A structural shift in industry and redistribution of resources from civil goods production to war industry is also necessary. Maintenance of such structural shifts using only market mechanisms (sharp price increases on everything related with the army), leads to severe social conflicts ("capitalists make a fortune on war").

A typical reaction would be to establish different forms of price control and rationalize the most substantial resources and goods, starting with provisions. A situation of suppressed inflation was aroused. Aggregate demand exceeded supply, prices were lower than equilibrium, and there was full employment. Excess demand showed up in line formations, empty store shelves, a black market, and halted material and technical supply of production[7]. Under the conditions of suppressed inflation, money becomes only one lever of allotment along with cards, a system of priorities in purveyance, etc. Forced population savings were mobilized to cover the budget deficit.

The reaction to the deficit of industrial resources were supply growth and weak points (bottlenecks) in production. It was not easy to evaluate the resource deficit, therefore resource allotment among branches and firms was far from optimal. Rapid growth of the state machine was an inevitable reaction to such difficulties.

In terms of war, relative simplicity of the determination of national priorities, patriotic enthusiasm, and evidently the temporary nature of suppressed inflation were the main factors that allowed for controlling such problems.[8]

There is a principle difficulty and rather serious risk for a state that is on the way to suppressed inflation. It is the real ability of the state to secure wide mobilization and redistribution of prime resources by using only extra-market methods.

Attitude to war according to the communist experience, with its suppressed inflation and extra-market regulations in the 20's among Bolsheviks, always remained two-sided. On one hand, it was officially declared a temporary policy, out of necessity caused by war conditions. On the other hand, it was declared a policy that corresponds more with long-term socialist orientation than a temporary flirting with the capitalistic market.

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[7] See: Charlesworth H. *The Economics of Repressed Inflation*. London, 1956; Kale M. Inflation. Wages and Rationing. – *Studies in War Economics*. Backpool, 1947; Lerner A. *The Economics of Control*. London, 1944; Novozylov V. Goods shortage. *Bulletin of Finance*. 1 2. 1926.

[8] Galbraith J. Reflections on Price Control. – *Quarterly Journal of Economics*. August 1946.

It is no wonder that by the end of the 20's, when market mechanisms influenced by savings crisis began to be problematic, the ruling elite used the experience of suppressed inflation regulation.

Again the distributing machine was formed, its role grew, and state control over trade and the flow of goods had intensified. Goods deficit, lines, and black market reappeared.

In 1928, as the inflationary crisis aroused problems of bread provision and city purveyance, the reaction was not cutbacks in state investment to the level where it was compatible the with normal activity of market mechanisms. Instead there was a rejection of market mechanisms, return to the compulsory seizure of bread-stuffs, along with organization of a powerful administrative machine and mobilization of material and financial resources from the village. That was collectivization.

It is for the first time in contemporary economic history when during peace time a new, well developed system of administrative regulation for economic life and that displaced the market mechanism was formed. In this case, the place of the stimulated state goal "to win the war" is replaced by the goal "to force industrialization"

Typical features of the new socialist model of economic growth are:

- *supremacy of state property, liquidation of legal and state independent private property;*
- *dominant state role in national savings mobilization, their allotment and usage;*
- *organization of administrative hierarchy of complying superiors to cover economy of the entire country and coordinate economic activity by direct acts. Market system loses its basic role as micro-economic regulator and moves aside of economic life;*
- *egalitarianism, lowering extremely high differentiation of the income typical for young capitalism;*
- *overtake import displacement industrialization based on redistribution resources from the agrarian to industrial sphere as a basis of structural policy;*
- *rough political control that excludes any unsanctioned forms of mass activity;*

- *messiah ideology that promises a reward on Earth tomorrow for abstinence and self-sacrificing labor today.*

This set of institutional innovations[9] allows for breaking the number of limits that are imposed on the economical growth of market mechanisms.

The size of national savings ceases to be dependant upon magnitudes that are difficult to manage, namely private savings and investments. A high level of taxation does not suppress economic activity because it does not depend on the autonomous decisions of private businesses.

Channels of capital outflow are securely shut by overall financial control. Totalitarian political control removes the limits on volumes of financial resources that are used for state mobilization for savings. An extremely high and long-term stable norm of national savings allows for securing an industrial spurt and accelerating the rates of economic growth.

Egalitarianism and industrial dynamics provide demonstrative persuasion of the official ideology.

The coincidence of fast industrialization in the USSR with a deep crisis in leading capitalistic countries from 1929-1933 brought intellectual respect to the socialist ways of solving development problems[10]. It also drew the attention of countries that faced overtaking industrialization and became an example for them.

The specific character of the socialist model lies in the ability of collectivization and forcible seizures of a large part of agricultural products to cut down labor remuneration in the traditional sector below the level of average labor efficiency.

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[9] Detailed large-scale analysis of the institutional structure of a socialist economy can be found in: Kornai J. *The Socialists System. The Political Economy of Communism.* Oxford, 1992.- These lines author's standpoints concerning internal mechanisms of a socialist economy can be found in Economic Reforms and Structures Hierarchy. In the future we will try to concentrate on relations between these mechanisms within the limits of socialist growth and the nature of post-socialist crises. From now on we will try not to repeat that which was stated in previous works.

[10] An example of the typical pessimism of the 30's – 40's concerning the abilities of capitalism to confront socialistic industrial dynamism would be the book of brilliant economist J. Schumpeter, who did not sympathize with socialism. Schumpeter J. *Socialism, Capitalism and Democracy.* 1942.

As a result, additional financial resources were aroused. Also, a decrease in peasants' living standards provided low wages and a powerful flow of the labor force into the city. Both in traditional and modern sectors, additional resources for financing industrialization were formed.

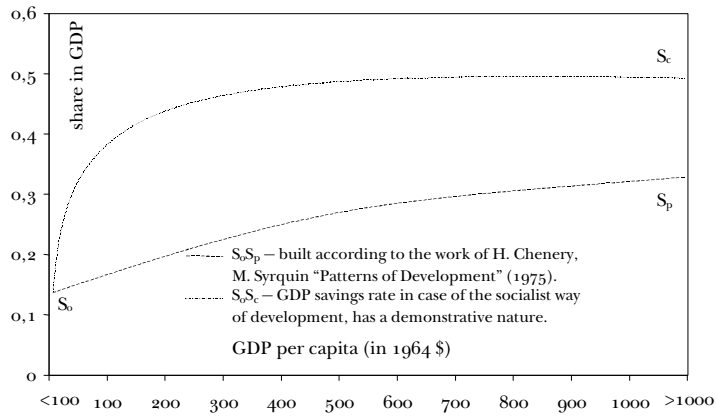
Therefore, the socialist model allows for providing high rates of redistributing resources from the traditional sector and makes GDP savings rate greater than in the case of market industrialization. State compulsion is the main instrument that guarantees a decrease in living standards in the traditional sector and mobilization of resources for industrialization needs. As results from the above stated, part of the state income in GDP for countries with socialist industrialization is greater than in market economies.

The chosen socialist model allows for solving the fundamental problem of market industrialization. It helps overcome inertia and given rates of national savings. However everything is to be paid. The market mechanisms that were turned off, including those that are responsible for accurate tuning, stimulus of effective use of recourses and mechanisms of effective innovation selection, caused a permanent high GDP resource-input ratio, particularly its high energy-output ratio. Besides, the closed nature of the economy means a lesser part of export and especially processing industry export in GDP. The same happened in countries of capitalist import displacement industrialization.

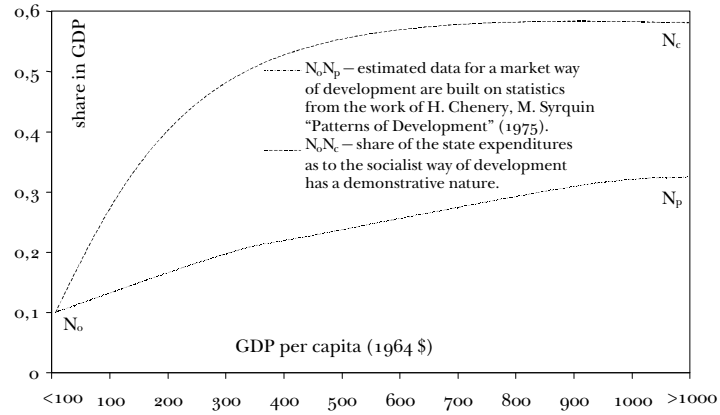
The peculiarity of the socialist model in comparison with normal market industrialization is shown in graphs 1-3[11]

[11] Appearance of the graphs that characterize the relations between GDP per capita growth, GDP savings rate, GDP rate of state expenditures and GDP export rate for market economies is explained by the data in table 1. The peculiarity of the socialist model (greater state expenditures and savings ratio, closed nature, lesser GDP export rate) and low efficiency of resources in comparison with the magnitude typical for market economies is explained by the special logic of the socialist growth model. That was reached by great state redistribution of resources from the traditional sector using a swift increase of the GDP savings rate as the result of market mechanisms cessation and economy closure. Empirical confirmations of such an anomaly for the Soviet economy can be found in: Ofer G. Soviet Economic Growth: 1928-1985. *Journal of Economic Literature*. Vol. XXV (Dec. 1987).

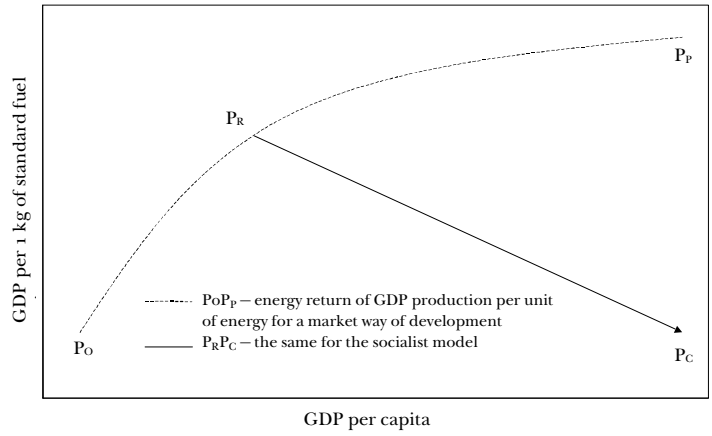
Graph 1. GDP savings rate



Graph 2. GDP state expenditures rate



Graph 3



The large-scale redistribution of financial resources from the traditional agrarian sector to finance state-coordinated industrialization, decrease of not very high (during early industrialization) living standards of the peasantry, constant agricultural stagnation against the backdrop of rapid industrial growth, together compose a vivid distinction between the socialist model of industrialization and the tendencies of market economies.

As a rule, pioneers of capitalist industrialization faced an agrarian revolution, that is, a fundamental increase in farming productivity that preceded rapid industrial growth. The beginning of the agrarian revolution in England was defined as 1690-1700, in France and the U.S. as 1750-1770, in Germany as 1750-1800. By the end of the XIX century, it took place with the help of the traditional base, not by using machines and fertilizers, but by improved crop rotation, seed breeding and improved instruments of labor[12]. Growth in farming production at the very beginning of the industrial spurt fell behind industrial production growth but was closely related to it[13].

Let us make a theoretical analysis of the long-term consequences that choosing the socialist growth model would bring, and the internal factors that would limit the possibility of stable development.

According to Angel's law, the ratio of provisions in consumption volume decreases when GDP per capita increases. However, in absolute expression, expenditures on provisions also increase when living standards increase.

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[12] *The Fontana Economic History of Europe. The Industrial Revolution.* London, 1978. P.466

[13] By calculations of V. Meliantsev, the correlation between growth rates for industrial and farming production in Western countries and Japan during the period of the industrial spurt approximately was 0.784 (*Economic Long-term Growth of Western and Eastern countries.* Moscow, 1995, P.197). In those cases when by virtue of institutional factors (first of all they were the structure of land property and land-utilization), agrarian development slowed down serious problems of external accounts and whole economic growth was eventually suppressed. Information about role of agrarian development in the industrialization process of the XIX century one can find in Morris C., Adelman I. *Comparative Patterns of Economic Development, 1850-1914*. Baltimore, 1988; Adelman I., Lohmoller J. Institutions and Development in the Nineteenth Century: A Latent Variable Regression Model. – *Structural Change and Economic Dynamics*. Vol.5(2).1994. P.329-359.

Although in the case of market economy industrialization, growth in farming production falls behind the growth of the whole economy, it is stable for a long term and provides provision consumption that grows. Currently the U.S. is the greatest exporter of agricultural products in the world. Member countries of the OECD have a trade surplus of agricultural products that almost equals zero.

Of course, in the case of open economy and the limited part of farming in the economic structure of agricultural industry growth that outruns provision, consumption is not the necessary presupposition of stable national economic growth. Yet the general tendency looks this way.

Under the conditions of socialist industrialization, intense redistribution from the village leads to a state when high rates of industrialization, increase in GDP per capita, increase of product demand take place against the background of farming stagnation, which is deformed by the very mechanism of initial socialist accumulation. Thus, factors that caused abnormally high rates of socialist industrialization (decrease in life standards of the peasantry, maximum redistribution of resources from the traditional agrarian sector during early industrialization) cause the most serious long-term anomaly of socialist growth. These are divergent ways of industrial and agricultural development.

Sooner or later the product deficit becomes a long-term structural problem and their import becomes a rigorous necessity. Meanwhile, economic autarchy, small part of external trade in GDP, hinders solving the problem by processing industrial export dynamic growth, which is necessary for stable product export financing.

Let product consumption (d) for a socialist country per capita increase the function of income level per capita (y):

$$d = f(y)$$

Let provisions production per capita (q) also be a function of GDP per capita:

$$q = p(y)$$

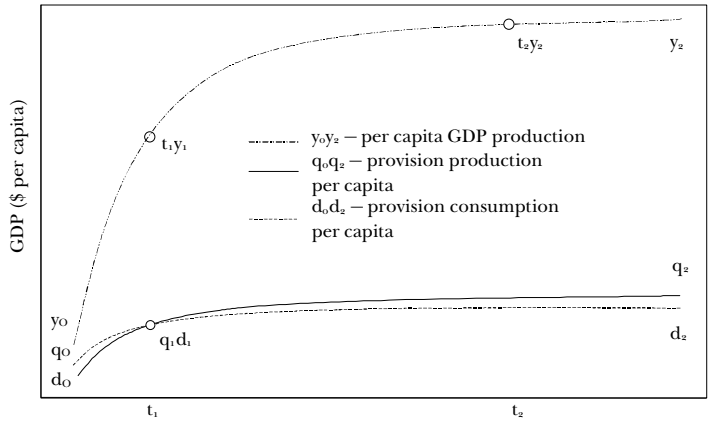
Then provisions export(import) l_p per capita is calculated this way:

$$l_p = p(y) - f(y)$$

The peculiarity of the socialist economy caused by a typically extreme load of the traditional agrarian sector and decrease

of income level here during a primary industrial spurt lies in the fact that the ratio of provision production in GDP dwindles faster than the provision consumption ratio[14] (graph 4).

Graph 4



At the very beginning of socialist industrialization, when GDP production per capita equaled y_o, provisions production q_o was greater than their consumption d_o. The country was an agricultural products exporter. Agricultural export per capita $l_{Po}=q_o - d_o$. With the increase of development level, provisions consumption grows faster than declining production and in t_1y_1 point export is equal to o ($d_1=q_1$). Further income growth transforms the country into the position of pure provisions importer. In point t_2y_2 provisions import per capita (l_{P2}) equals $d_2 - q_2$.

For countries with import displacement industrialization, upper borders of GDP per capita growth are set by maximum possible stable volume of raw material export. Other magnitudes are set by the nature of economic growth in the network of the chosen strategy:

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[14] Close political and economic relations of Eastern-European socialist countries with the Soviet metropolis and Soviet resources support do not allow for regarding them in the 50's – 80's as countries that were making their way of the development. It is more correct to speak about the regional specifics of development inside the Soviet empire, to regard it as a whole including country satellite. Further (in chapter 4) we will check the hypotheses formulated here by analyzing real ways of magnitudes, the same for the USSR and China.

$$y_m = C_m l_o + C_m l_c \text{ where}$$

y_m is the maximum level of income per capita;
C_m is the maximum close of economy;
l_o is the export of processing industry per capita;
l_c is raw materials industry export per capita.

The limited competitive ability of processing industry export combines models of socialist growth and import displacing (displacement) industrialization. By virtue of the specific socialist agrarian sector, some necessity to guarantee agrarian import adds to the limits, caused by the necessity of access to the world's techniques and exchange of technologies.

Thereby raw material export per capita could be divided into two components: mineral materials export (l_m) and provisions export (l_p). Then the formula that determines the highest GDP per capita level for socialism would look as follows:

$$y_{max} = C_m l_o + C_m l_m + C_m l_P$$

Since provision export (import) is determined by GDP per capita production:

$$y_{max} = C_m l_o + C_m l_m + C_m [p(y) - f(y)]$$

At the GDP maximum extreme (y_{max}), provisions consumption per capita and provisions production per capita are fixed parts of GDP per capita and are equal to f_{max} and $p_{max.}$ Hence:

$$y_{max} = C_m l_o + C_m l_m + C_m (p_{max} y_{max} - f_{max} y_{max})$$

After a simple transformation we have:

$$y_{max} = (C_m l_o + C_m l_m) / (1 - C_m p_{max} + C_m f_{max}) = (C_m l_o + C_m l_m) / [1 + C_m (f_{max} - p_{max})]$$

Thus, while attempting to find the maximum possible development level for the socialist model, we realized that it also can be determined by the utmost size of processing industry export per capita (l_o) and by the level of economic closeness (C_m). Also, it could be determined by the specific national magnitude that is by maximum possible mineral material export per capita (l_m), GDP ratio of provisions production(p) and consumption (f).

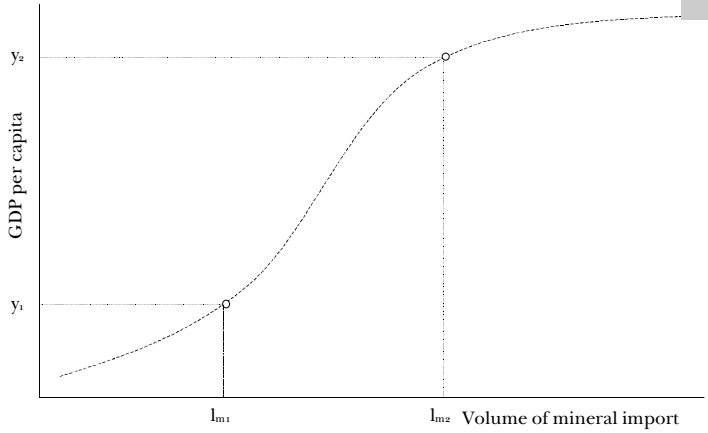
Considering all that has been previously said, socialist industrialization history is to be divided into two totally different periods.

First. Resources of the traditional sector are not depleted yet. Provisions production per capita is greater than provisions consumption per capita (q>d). The country is a provisions exporter (l_o > o). The economy is closed, processing industries' export is limited, agricultural and mineral materials export provides exchange earnings that are the minimum needed for borrowing technical attainments from developed market economies. The GDP export ratio rapidly decreases and then stays at a rather low but stable level.

Second. The growing demand of provisions exceeded the volume of declining national agricultural production (d>q). Step by step, the socialist country facing danger of hungry people's complaints becomes net provisions importer(l_o<o). Since the processing industry is not competitive, the mineral materials export load increases. Now it is responsible not only for technological exchange guarantee, but also for provisions import financing. To secure financing of provisions import, there will be an inevitable increase in the GDP export ratio and volume of mineral materials export per capita (graph 5).

The crisis of socialist growth model starts after basic resources of traditional agriculture are drained. This is when all of its inner limitations become apparent – high power-consumption, low borrowing power of the process industry's production, absence of structural shift mechanisms within the framework of the economy's modern sector, low effectiveness of investments. The totality of these factors makes for a trend towards a rapid fall in the capital productivity ratio and in the economic growth rate.

Graph 5



In the graph are shown GDP per capita growth and corresponding volumes of mineral export.

In the graph below y_1 the nature of the line is explained by the growing autarchy of the economy and preserved agrarian export. Going below point y_1 (where l_p = o) the mineral export load rapidly increases. Further economic growth in the framework of socialism (y_1 to y_2) is possible only when the resource base can provide stable growth of mineral export ($l_{m1} \rightarrow l_{m2}$). At this point, GDP per capita growth takes place

against the background of growing provisions import and corresponding mineral export growth. Exhaustion of further opportunities of mineral export growth (l_{m1}) determines the limits of possible country development as to the socialist model for the corresponding national economy.

A peculiarity of socialist growth is its power consumption. This includes not only stable growth of energy consumption per capita, but also a continuous declination of energy return. Comparing the rates of GDP growth in the USSR 1940-1985[15] and the rates of energy consumption growth[16] we realize that in each of the mentioned periods, rates of energy consumption growth exceeded rates of economic growth.

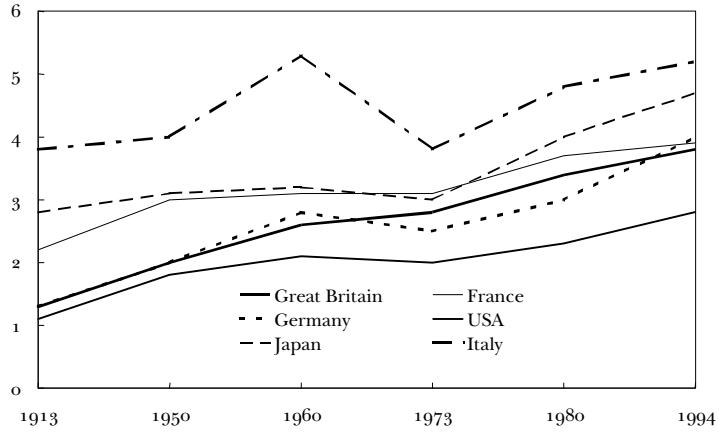
Table 1. GDP and energy consumption growth in the USSR

	1940–1960	1961–1970	1971–1980	1981–1985
GDP growth	2,16	1,66	1,20	1,104
Energy consumption growth	2,97	1,69	1,54	1,123

This peculiarity is more substantial since the decrease of GDP power consumption as a rule goes with economic growth in market economies(graph 6).

Graph 6. Energy return of industry

GDP ($)/1 kg of energy consumption in oil equivalent



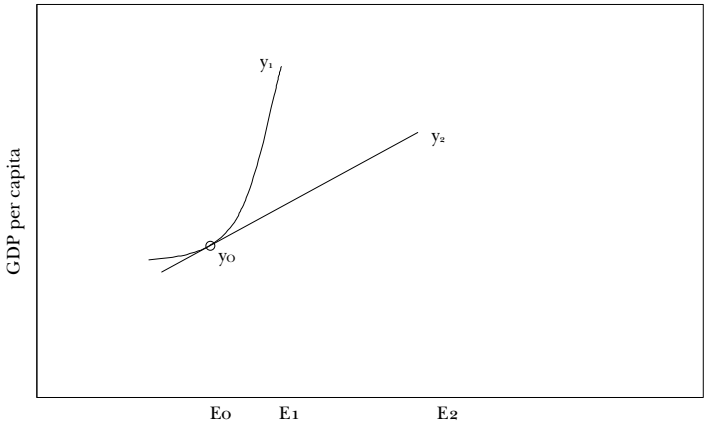
[15] Ofer G. Soviet Economic Growth (1928-1985). *Journal of Economic Literature*. Vol.XXV (December 1987). P.1778

[16] *National Economy of the USSR over 70 years*. Moscow, 1987.

Then it is possible to assume that by virtue of its internal logic (rejection of market mechanisms) socialist economic growth has two more limiting magnitudes: maximum possible GDP production per unit of energy consumption and maximum size of energy production per capita determined by the country's resource base (graph 7).

In the graph, where line $y_o y_1$ presents energy consumption per capita growth with the growth of GDP per capita in market economies, eo presents national energy production per capita, $e_o e_1$ presents energy supply import per capita. The open nature of a market economy allows for financing energy requirements that emerge after point y1 at the expense of processing industry export. Line $y_o y_2$ is the dynamics of the mutual dependence of GDP production per capita and energy consumption per capita for a socialist economy (with production that consumes more energy). Its closed nature and limited processing industry export make the size of national energy resource production per capita (e_2) the upper limit of production and consumption per capita growth (y_2).

Graph 7[17]



Energy export dominates in the structure of global mineral trade. Thereby, one can draw a conclusion that when primary industrialization resources are exhausted and the country becomes an importer of agricultural products, its fuel-and-

[17] Lines $y_o y_1$ and $y_o y_2$ on the graph are determined by the differences in the dynamics of energy consumption for socialist and market economies. Differences were discussed earlier.

energy sector is double loaded. Firstly, energy export growth is a necessary condition for the export of provisions and technological exchange growth. Secondly, GDP energy intensity, which does not decrease, requires constant growth of internal energy consumption as fast as economic does[18]. Opportunities of socialist development after agrarian resources are exhausted are set by an upper limit of stable energy resources production per capita.

Greater rigidity of resource limitations incites countries with poor resources to leave the framework of the socialist growth model during the early stages of development, when they still possess sizeable reserves of cheap man power with zero ultimate output in the traditional sector. Countries rich in resources have the opportunity to respond to the crisis of early socialist industrialization with increasing mineral export and agricultural import.

Therefore, it is obvious why a crisis of socialist growth begins in "poor resource countries" during a relatively earlier stage of industrialization than in countries which are provided with resources. For "poor resource countries" it starts at a stage when big labor reserves are still preserved with marginal efficiency in a traditional sector equaling 0. In the case of tight resource limits, the redistribution of these resources into labor intensive branches of processing industry is the only sensible strategy. Growth of home processing industry competitive power is a precondition of strategic success. To achieve this, an open economy and returned market mechanisms are needed. If industrial potential were saved, this process would take place against the background of industrial growth.

A country with poor resources, after an initial industrial spurt which allowed them to increase the conservation ratio, form an industrial structure, and advance the education level, has the opportunity to enter a basic way of development at the expense of preserving resources in the traditional sector. This may happen if countries promptly change their economic slogans and references. Resource-rich countries have the opportunity in the frame of socialism to take a rather long way of industrial development, the same

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[18] One can think of the development of Eastern European socialist countries as an exception to this rule. The fact is that because of close political and economic relations between those countries and the USSR, it is not correct to regard them as independent economies. They were naturally integrated into the Soviet empire's economic development structure. They were provided with the empire's resources and shared its fate. National ways of development for Hungary, Czechoslovakia, Poland, etc. during the 50's – 80's just could not be realized at that time without the resource base of the USSR. Thereupon, here and further under the name of "resource-poor socialist countries" we would mean only those a)that have a low maximum possible size of stable raw material export; b) that do not have any chance to be supported by the resource base of a rather rich metropolis.

with the model of import displacement industrialization. And only very rich countries can invest the biggest piece of cake into war industry (as the USSR did). Yet when chances to grow in the frame of the socialist model are exhausted, the market mechanism start for them is rather difficult and it takes place against the background of an acute crisis that was formed inside socialism and does not fit the market structure of the economy.

The peculiarity of mutual relations between the economy and politics determines one more fundamental problem that is way out of socialism for countries with different levels of resource provisions.

A socialist country poor in resources in the frame of the socialist model runs up to a level of economic development where it is almost impossible for powerful democratic processes to be formed. On the contrary, a rich country is able to raise production per capita and consumption per capita indicators to the level that is natural for a stable democracy, to form social and economic preconditions of democracy. So we can assume that for a country rich in resources, the probability of a serious political crisis of a totalitarian regime is bigger than for countries with poor resources.

Let us try to check the formulated hypotheses about anomalies of socialist growth using actual material.

Industrialization and Exhaustion of Resources for Socialist Growth in the USSR and China

In the USSR, economic policy during 1929-1934, which was the period of the first industrial spurt, was based on a decline in peasants' consumption and heavy withdrawal of resources from the countryside.

In order to determine how many resources could be taken from the agrarian sector, very strict means were applied. That was the trial-and-error method, since ancient times used for determining the amount of levy[19]. In the early 1930's the price paid for errors was the lives of millions of people who died of starvation. Redistribution of resources from agriculture to other fields was being fulfilled at the cost of a sudden reduction in the rural population's living standards, hastened migration from the countryside to the city, and increased grain export (even though the manufacture of grain was decreasing) which allowed for increasing equipment import.

The USSR exported 4.8 million tons of grain in 1930, 5.2 million tons in 1931, and 1.8 million tons in 1932[20]. The total value of products and foodstuffs exported amounted to 80% of the equipment imported in 1929-1932[21].

Accumulated foreign currency reserves were as much concentrated on purchasing manufacturing resources as was possible. The share of consumers' import (which was 16.2% of total import in 1925-1926) decreased to 4.6% in 1931. The import of clothes, footwear, and foodstuffs was minimized.

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[19] "This is an additional tax, which is to be paid by peasants for the sake of development; industry supplies in the whole country including countryside. This is a kind of "levy", a kind of super-tax; we are forced to take it so that we could keep and evolve the present rate of industry growth"- *About Industrialization and Bread Problem.* Stalin I.V. (Writings. Volume 11. P.159)

[20] *The Industrialization of USSR in 1929-1932. Documents and material.* Moscow, 1970, p. 104-105

[21] *Building the foundation of socialist economy in USSR.* 1926-1932 Moscow, 1960. P. 522, 528

The share of raw materials for light industry in import was abruptly reduced as well (from 33.8% in 1925-1926 tio 9.3% in 1931). At the same time, the share of equipment and raw materials for heavy industry increased from 36.2% in 1925-1926 to 82.1% in 1931 and 85.2% in 1932[22]. Import of ferrous metals, machines and apparatuses, benches, electrical equipment, engines, fine mechanics goods was of fundamental importance for industrialization.

Only in 1932 did a boom in petroleum export exceed the value of grain export. Nevertheless even in the second half of the 1930's, agricultural export, along with petroleum and timber, determined the country's ability to import. Redistribution of resources from agriculture had a determining influence upon financing the investment programs of the first five-year plan. By decree of the All-Russian Central Executive Committee, on April 21, 1928 the Agricultural Tax Law was passed, according to which the taxation of kulak individual farms was sharply increased. In practice this law was being used as a retaliatory measure against those peasants who didn't want to become kolkhoz, or collective farm members. That is why tax was collected by individual order and general information about a farm's income instead of collecting it on account of general rates of profitability.

But the main part was played by another key factor – turnover tax. By decree of the Central Executive Committee and People's Commissar Council of the USSR on September 2, 1930, 54 previously used payments (excise-duty, trade tax, revenue from selling special goods reserves, timber tax, etc.) were combined into turnover tax. The base of this tax became extremely understated, obviously confiscating the purchase prices of agricultural products sold by collective farms.

In 1931-1932 turnover tax accounted for more than half of the total budget revenue (50.7% in 1931, 56.9% in 1932). Proceeds from payments, later combined into turnover tax, came to 3.1 milliard rubles in 1928-1929, 11.7 billion in 1931, and 19.6 billion in 1932. Taxes accounted for 42.5 billion rubles in 1928,1929,1932 economic years. The budget

[22] Ibid. P. 524-528

expenditure on industry, transport and agriculture made up 44.8 billion rubles for those very years[23].

The rapid increase in budget revenue cannot be explained without taking into account the anomalous agricultural price movements. Due to active use of emission for financing the national economy, the growth of retail prices was hastened. In 1928-1937 they rose 6.4 times as large. The retail price of wheat flour rose from 10.5 kopecks/kg in the beginning of 1927 to 4 rubles 60 kopecks in the beginning of 1937. At the same time, growth in the purchase price of grain already stopped in 1929-1930; agricultural products were collected as a levy. In fact, the quota purchase prices of smooth wheat were equal to 7.6 and 7.7 kopeks/kg correspondingly in 1928-1929 and in 1931-1932; of rye they were 5.5 k/kg. In 1935 turnover tax accounted for 90.5% of the wheat flour release price. The all-union association Zagotzerno alone paid to the budget 7.7 billion rubles in turnover tax in 1934 and 24 billion rubles in 1935, after recurrent retail prices grew[24]. The share of state expenditure in GDP was quickly increasing (table 2 and diagram 8).

The redistribution of resources from agriculture resulted in cutting down the amount of grain left in country for food needs, sterns and seeds by 7-8 million tons, or 15% comparing to the level of 1927-1928. Collectivization and a stern shortage were the major factors of the cattle breeding crisis.

Grain manufacture, which amounted to an average of 76 million tons in 1928-1930, varied at a level of less than 70 million tons in 1931-1934; only in prewar years was the pre-collectivization level reached. Cattle declined from 60.1 million heads to 47.8 in 1928-1940. Dispossession of the kulaks and famine and repression in the early 1930's appreciably brought down the population growth rate, but it couldn't be stopped at that stage of industrialization. An increase in population by 20 million people from 1926-39 accompanied by stagnation in agriculture caused a decrease in food manufacture per head by roughly 15%.

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[23] Plotnykov K. *Studies of Soviet State Budget History* Moscow, 1955. P. 106, 111, 114, 133

[24] Malafeev A. *The History of Rice Formation in the USSR (1917-1963).* Moscow, 1964. P. 129, 181, 182, 393, 403, 407.

*Table 2. Share of state expenditure in GDP in the USSR**

Year	Per capita GDP**	Share of state expenditure in GDP (%)
1923/1924	285	12,6
1929/1930	368	28,7
1935	481	39,1
1940	603	47,9
1950	681	58,9
1955	794	45,5
1960	946	39,8
1965	1103	40,8
1970	1331	41,0
1975	1468	43,9
1980	1539	47,6
1985	1606	49,7
1990	1640	51,3

**Figures on per capita GDP – according to S.Sinelnikov's calculation based on A.Meddison's data (see Meddison A. Monitoring the World Economy 1820-1992. Paris, 1995) and that of the State Statistics Committee (1923-1924). Figures on the share of state expenditure in GDP - according to S.Sinelnikov's calculation based on data by the State Statistics Committee and Ministry of Finance.*

***Dollars of 1964*

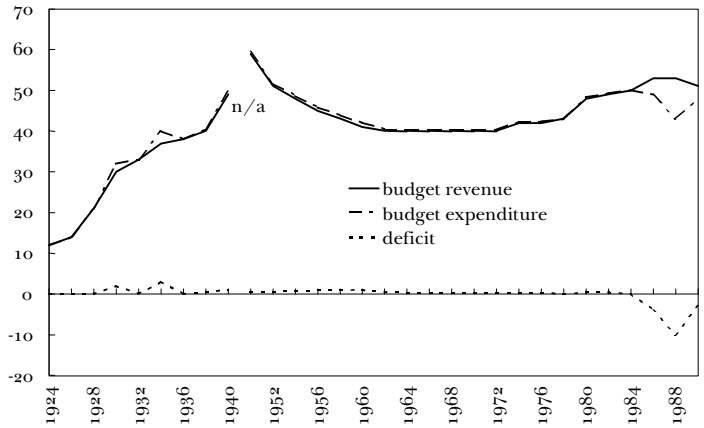
Simultaneously massed investments into industrial production (supported by resource flow from agriculture) allowed for obtaining high growth rates. Official figures given by the Central Statistics Department for that period (average of 16.8% per year in 1928-1940) give rise to well-founded doubts. Although even the adjusted subject to realistic deflator figures received by the researcher of the socialist industrialization (from 10-14% average percentage per year in 1928-1940[25]) are abnormally high.

In 1928 the USSR's GDP was similar to Russia's GDP in 1913, but the export was half the size.

[25] Davis R., Harrison M. Wheatarobt S. (eds.) *The Economic Transformation of the Soviet Union.* 1913-1945. Cambridge, 1994.

Graph 8. Budget expenditure, revenue and deficit of the USSR

% of GDP



**Extraordinary high (even for socialist trajectory) budget expenditure in 1940 - early 1950 are conditioned by the war and post-war reconstruction of the national economy*

Thus, in the USSR in the 1930's the first characteristic feature of the socialist growth model became evidently apparent: diverging trajectories of industrial and agricultural development, exceptionally high industrial growth rates against a background of crisis and efficiency stagnation in agriculture.

Collectivization allowed for removing market limitations on crop mobilization and export. Yet export growth appeared to be extremely unstable (table 3). It was impeded by trade barriers, an extremely unfavorable conjuncture at basic export markets. The chronic shortage of foreign currency had to be covered by broad gold export, by economizing strictly and rejecting foreign expert services. No data confirms the Soviet government's deliberate willingness to limit foreign trade.

Conversely, the first five-year plan assumed forced raising of the rate of export. But the way events were developing pushed the economy to the other side. Despite exerting every effort to increase export revenues, not only foreign trade part of GDP was falling, but also the absolute volume of foreign trade turnover.

*Table 3. The USSR's foreign trade**

millions of golden rubles

Year	Export	Import
1913	1506	1375
1928	796	953
1929	924	881
1930	1036	1059
1931	811	1105
1932	575	704
1933	470	348
1934	418	232
1935	367	241
1936	310	309
1937	376	292
1938	293	313
1939	133	214
1940	356	313

**1913 – Russia is in borders of the corresponding year*

Data by the State Statistics Committee

The level of per capita GDP in the USSR in the late 1930's (when socialist industrialization had already made its mark on the structural characteristics of the Soviet economy) was similar to that in Japan of those years[26] or in Italy before World War I. However, the structure of the ultimate use of Soviet GDP differs radically from Italian or Japanese (table 4).

An extremely low share of personal consumption allows for both securing high levels of savings and broad state consumption (first of all armament expenditure). Besides, the share of state consumption in the USSR was essentially understated, owing to the existing price structure (especially arms prices).

Japan before World War II and Italy in the beginning of the century had similar shares of foreign trade in GDP (correspondingly 29.5 and 28.1%.)[27] In the USSR this share is

[26] Estimations of Japanese per capita GDP at that time exceed estimations of Soviet per capita GDP over a range of 10-30%.
[27] Kuznets S. Ibid. p. 312.

extremely hard to estimate because of the drastic differences between internal and external prices, but according to any estimation it cannot exceed 5%.

Table 4[28]

Countries	Personal consumption	State consumption	Gross national savings
USSR (1937)	54,9	22,5	22,6
Italy (1901-1910)	78,5	5,6	18,1
Japan (1938)	60,7	11,5	27,8

Thus, socialist growth, especially at the stage of the first industrial spurt, not only reproduces the anomalies of import-substituting industrialization, but also radically intensifies it.

When after World War II a system of socialist countries vassal to the USSR was formed in Eastern Europe, they in full measure used the Soviet experience of industrialization, taking into account national specific characters to some extent.

Close economic contacts between countries-members of the Economic Mutual Aid Council and the USSR, non-discretion of Eastern socialist states (except for the Socialist Federal Republic of Yugoslavia) in everything that concerned economic policy, the non-market nature of those contacts (as it has already been mentioned) do not permit regarding them as countries having independent strategies of development in 1950-1980. We could rather speak about vassal economies, whose destinies were closely connected to the destiny of the Soviet Union. On the contrary, China, even when keeping as politically and economically close as possible to the USSR, retained all the distinguishing features of an independent state and carried out independent economic policy.

By the time the civil war was over and the communist regime consolidated in 1949, China's socio-economic situation was quite different from that of the USSR in the early 1920's[29].

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[28] Data concerning Italy – Kuznets S. *Modern Economic Growth*. New Haven, 1966. P. 237, 238; concerning USSR – Davis R., Harrison M. Wheatarobt S. (eds.) *The Economic Transformation of the Soviet Union*. 1913-1945. Cambridge, 1994. P. 272; concerning Japan – Minami R. *The Economic Development of Japan*. New York, 1986. P. 174.

The standard of industrial development was appreciably lower. In 1913 Russia had already left behind four decades of intensive growth, and was on the verge of coming out of an early industrial stage. In China the process of industrialization was fragmentary, the country (with the exception of few regions) had never known a period of steady industrial growth. In 1937 (just before the war with Japan started) Chinese per capita GDP was approximately 2.5 times as small as Russia's in 1913.

When estimating the scopes of production and consumption caused by World War I, revolution and civil war, a higher former standard of development in Russia should be taken into consideration. In China this fall (connected with World War II and the civil war) was not so strongly pronounced, as it followed a prolonged period of economic stagnation. That is why the reduction process was appreciably more important for the USSR than for China.

The USSR was the first country to follow the path of socialist industrialization, its pioneer. Chinese communist elite had an opportunity to interpret the lessons of Soviet development critically and adapt them to the specific conditions in their country. Although in 1949-1957, leaders of the Communist Party of China never called in question the expediency of using Soviet experience in the field of industrialization; from the very outset Mao Tse Tung was not disposed to blindly imitating Soviet recipes.

The existence of a neighboring union socialist state allowed The People's Republic of China to rely not only on Soviet experience in the field of industrialization, but also on technical and resources potential of the USSR when developing their industrialization strategy.

Yet, even in view of all the differences in base conditions, the course of events in China during 1949-1954 bears a strong resemblance to the economic history of the USSR in 1921-1927.

The basic cause of the pre-revolutionary regime's weakness and instability lied in the fact that land tax went beyond the control of Guomindang's (National People's Party) central government and became regional. The termination of civil

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[29] About the economic situation in China by the time the Communists won the civil war see: Lin Ta-Chung and Yan K'ung Chia. *The Economy of Chinese Mainland: National Income and Economic Development, 1933-1955*. Princeton, 1965.

war and political stabilization created the necessary prerequisites for increasing the efficiency of the fiscal system, contributed to augmenting the state revenue share of GDP. In 1950 the central authority took strict control over agricultural tax, as well as the totality of indirect taxes (analogue - restoration of budget revenue in the Russian Soviet Federate Socialist Republic of 1921-1922). The increase in budget revenue allows restraining hyperinflation, restoring price stability[30] (analogue – the USSR in 1922-1924). The peasant tinge of the revolution became apparent in land reform, confiscation of large-scale land and their distribution among peasants. On the whole, 43% of cultivated land was distributed, and 60% of the rural population was affected by the tax increase (1950-1952). According to available estimations, approximately 2 million landowners were killed in the course of those measures[31]. (In Russia, a similar process had its place during the civil war). Inner economic mechanisms stayed mainly market; at the same time the share of state property was scaled up, and the control of resource flows was toughened.

Both the confiscation of foreign trade companies and initiation of state control for external economic activities played a part similar to that of establishing a foreign trade monopoly in the USSR, though in China the regulation was milder at first.

In industry and transport, the reconstruction of war-destroyed industrial enterprises and communications were considered a priority. Only from 1953 was a new broad industrial construction developed in close collaboration with the USSR.

Just as in the USSR, abysmal distrust towards private property and rich farms, as well as striving for owning a reliable instrument for withdrawing resources from the countryside, stimulated measures for developing cooperative farming controlled by the state. The problem of providing industrialization with resources got entangled with the grain purchase crisis.

In 1951-1952 the rate of grain production growth was abnormally high (average of 11.5% annually). The first five-

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[30] *The Cambridge History of China.* Vol. 14. Cambridge, 1987. P. 150-151.

[31] Lardy N. *Agriculture in China's Modern Economic Development.* Cambridge, 1983.

year plan assumed dynamic grain production as well as purchase growth (5.3% annually in 1953-1957). But in 1953-1954 the growth of grain and farm commodities production declined badly (up to 2.5% in 1953 and 1.6% in 1954 for grain). Cotton production declined those years (by 9% annually). The deceleration of agricultural growth called into question the whole strategy of the first five-year plan[32].

Agricultural export was the main source of arrivals and foreign currency, needed for purchasing imported equipment. Besides, the slow growth in agricultural production along with state interference in the grain market's function in 1953 caused a crisis of state grain procurements and grain supply, considerably advanced prices at rural markets, and a deficit of provisions in cities. Facing this problem, the Chinese guide, as well as the earlier Soviet guide, was to choose between increasing purchase prices, redistributing investment resources in favor of the consumer sector, decreasing savings or intensifying pressure upon the peasantry. At the end of 1953, the second variant was chosen: the introduction of a system of compulsory agricultural production purchases at fixed prices and temperate acceleration of cooperative farming.

Those measures allowed for increasing the volume of grain purchases from 17-22 million tons, keeping up the growth rate of industrialization and investments. But stagnant agricultural production gave rise to natural doubts about whether compulsory agricultural production purchase in itself would deal with the problem of the mobilization of agriculture resources. Hence, this called for striving to increase the growth rate of co-operation and strengthen control over the countryside. The natural resistance of the rural population caused compulsion and political discrimination. New-founded cooperative farms were the first to suffer from attempts to increase grain purchases at any price (1954-1955). A sharp debate about further development of agrarian policy followed, which was concluded with a peculiar compromise. The growth rate of collectivization was sharply increased, so that by 1956 an overwhelming majority of farms has been combined into the cooperative farms. However, in order to slacken social tension in the countryside and alleviate resistance by the rural population toward compulsory collectivization, the

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[32] Walker K. *Food Grain Procurement and Consumption in China.* Cambridge, 1984.

volume of state purchases were decreased in comparison with 1953-1954[33].

As a result, a potent fall of agriculture (characteristic for the period of broad collectivization in the USSR) was avoided those years in China. Still the fundamental problems of socialist accumulation were not settled. As could be awaited, compulsory collectivization by no means brought growth of the agricultural production volume or efficiency. The growth rate of agricultural production in 1956-1957 was lower than during previous years. Meanwhile, the urban population grew from 83-106 million people in 1952-1957. An all-embracing rationing system was introduced in the summer of 1955. The restriction of agricultural production purchases (39.8 million tons in 1957, that is, 1% less in comparison with 1954) signified, that the problem of mobilizing resources to supply cities and finance industrialization were not solved.

Following its own path, in 1957 China faced the necessity of choosing a strategy of further development (the USSR faced a similar choice in 1927-1928): either confine the growth rate of investments in heavy industry, reinforce attention focused on agriculture and light industry, confine the volume of compulsory agricultural products purchases, renew stimuli towards increasing agricultural production efficiency, and decidedly reject the model of reinforcing industrialization at the cost of the peasantry (in China among the adherents of that way were developers of the second five-year plan and leading economists, such as Peking University's rector Ma Inchoo[34]), or give up the policy of coquetting with the peasantry and use fully the machinery of state compulsion for the purpose of mobilizing country resources. The chosen strategy of a great leap forward stood for a resolute turn to socialist industrialization.

The course of events in China during 1958-1963 bore a strong resemblance to the trend of developments in the USSR during 1929-1934 (tables 5-11)[35].

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[33] *The Cambridge History of China*. Vol. 14. Cambridge, 1987. P. 162-171

[34] *The Cambridge History of China*. Vol. 14. Cambridge, 1987. P. 180-184.

[35] Data concerning the USSR is provided by the Central Statistics Department – State Statistics Committee; concerning China - *The*

Table 5. Grain yields and state grain purchases during the first years of socialist industrialization in the USSR

	1928	1929	1930	1931	1932	1933
Grain yield (million tons))	73,3	71,7	83,5	69,5	68,4	67,6
State purchases (million tons)	10,8	16,1	22,1	22,8	18,5	22,6
State purchases (% of yield)	19,7	22,5	26,4	32,8	27,0	33,4

Table 6. Grain yields and state purchases in China during first years of socialist industrialization

	1957	1958	1959	1960	1961	1962	1963	1964
Grain yield (million tons)	195,0	200,0	178,0	143,5	169,0	170,0	187,5	194,0
State purchases (million tons)	48,7	58,8	67,4	51,1	40,5	38,1	43,5	47,4
State purchases (% of yield)	25,0	29,4	39,6	35,6	25,3	22,4	23,2	24,5

Table 7. Grain export during collectivization years in the USSR

	1929	1930	1931	1932	1933
Grain export (million tons)	0,18	4,76	5,06	1,77	1,69

Table 8. Grain export during the great leap forward in the People's Republic of China

	1957	1958	1959	1960	1961	1962	1963
Grain export (million tons)	2,1	2,8	4,2	2,7	1,3	1,0	1,5
Net grain export (without import) (million tons)	1,9	2,7	4,2	2,7	-4,5	-3,9	-4,5

Cambridge History of China. Vol. 14. Cambridge, 1987; Lardy N. *Agriculture in China's Modern Economic Development*. Cambridge, 1983.

Table 9. Per capita consumption in the USSR

kg/person annually

	Urban		Rural	
	1928	1932	1928	1932
Grain	174,40	211,30	250,40	214,60
Potatoes	87,60	110,00	141,10	125,00
Meat and meat products	51,70	16,90	24,80	11,20
Butter	2,97	1,75	1,55	0,70

Table 10. Per capita grain consumption in China

kg/person annually

	1957	1958	1959	1960	1961	1962	1963	1964
Urban	196,0	–	–	192,5	180,8	–	–	–
Rural	204,5	201,0	183,0	156,0	153,5	–	159,5	178,5

Table 11. Peasant revenues from collective farms in China (1956-1962)

yen per year

	1956	1957	1958	1959	1960	1961	1962
Current prices	43,1	40,5	41,4	37,6	41,3	48,1	46,1
Constant prices (1957)	45,5	40,5	40,5	–	–	–	34,9

As has already been mentioned above, the major characteristic feature of socialist industrialization lies in the abrupt limitation of the rural population's consumption, and in the policy of drawing out the highest possible volume of resources from traditional sectors. The peasant revolution, which paved the way to socialist experiment, was concluded with the enslavement of peasants and restoration of the strictest exploitation norms, typical for traditional agrarian society.

Extremely strict forms of exploitation, applied in the Chinese countryside at the preceding stage, simultaneously stimulated a high tempo of migration into cities by the most socially active and mobile groups, and deformed traditional peasant ethics. Under market industrialization conditions, the eldest son usually inherits the farm, and these for whom there is not enough land form the base of the urban labor force; under the conditions of socialism, the countryside is

left by everyone who has the opportunity – that is, by the most competent and active.

In collective farms a general system among agrarian society is formed in which intensive and productive gardens next to the houses become the main source of consumption for peasant families, while work in the collective farm becomes statute labor, accompanied by the traditional peasant's attitude toward such work. Hence the low effectiveness of collective farm production.

After World War II the USSR kept heading toward drawing out the highest possible volume of resources from agriculture. The gap between purchasing and retail provisions prices ran up to the maximum. Now statute labor was being supplemented with in-kind and monetary tributes levied from homestead lands (obligation to deliver crops and homestead lands' taxation). In 1948-1950 the average two-month monetary salary was only sufficient for buying 1 kg of butter[36].

By the beginning of 1950's it became evident that the model of early socialist industrialization based on using agricultural resources was coming to an end in the USSR. Grain harvests of 1948-1952 were approximately equal to those of 1928-1930 (correspondingly 77.9 and 76.1 million tons). But as the population increased, per capita provision with foodstuffs continued falling. The low productivity of agriculture and deficit of foodstuffs became so manifest, that after Stalin's death there was no controversy among Soviet high leaders concerning the cruel necessity for radical changes in agrarian policy. Everybody agreed with the need to raise purchasing prices, lower taxation, and increase the amount of investments into agriculture.

The story of Khruschev's agrarian policy, its primary successes and following collapses exceeds the limits of this work's theme. Only three circumstances deserve being mentioned here:

1. The collective farm system, which demonstrated high efficiency as a tool for withdrawing agricultural resources during preceding stages, appeared to be little suited for rational utilization of assets granted to agriculture by Khruschev and his successors.

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[36] Nove A. *An Economic History of the USSR.* London, 1989. P. 293

2. Despite this evident fact, the USSR's leaders have never discussed the question of dismantling the collective farm system; the only reaction to the provision crisis lied in wide grain purchases from abroad, supported by raw material export.

3. The rich resource base of the USSR allowed it to rely on supplying the population with foodstuffs and supporting agriculture itself at the expense of raw materials export. The reserves of socialist growth still were not exhausted in the USSR at that time.

In the early 1960's, the part of traditional sectors used in mobilizing financial resources for industrialization was drained. State agricultural subsidies came to take the place of rapidly reducing turnover tax. In 1958 the volume of agricultural import became comparable to the volume of agricultural export. In 1960 the USSR started purchasing considerable amounts of grain abroad (table 12).

During these years the number of workers in industry equaled the number of workers in agriculture, as well as the number of urban population to the number of rural population. Rendered lifeless by socialist industrialization, agriculture grew into a long-term problem, and it devoured more and more resources, using them with undoubtedly (taking into account the past history) low efficiency. Because it wasn't possible to effectively control migration from the village to the city by merely administrative sanctions, the government had to increase the rural population's standard of living little by little, to spread social guarantees (once available only for city dwellers) over the rural people.

The connection between the fluctuation in socialist industrialization's dynamics and the redistribution agricultural resources can be clearly seen in the economic history of Eastern Europe countries.

Exhaustion of the possibility to scoop resources from traditional sectors changes the economic situation radically. The boundary of the early 1960's in the USSR was the time when economic advantages of withdrawing broad resources from agriculture were replaced with the strong necessity to pay for the forms and scales of that withdrawal. The applied socialist industrialization model starts showing its painful long-term after-effects.

Table 12. Grain Import and Export of the USSR

million tons

Years	Import	Export
1909-1913 (on average per year)	–	10,5
1930	–	4,8
1940	0,1	1,2
1950	0,2	2,9
1960	0,2	5,8
1961	0,7	7,5
1962	0,0	7,7
1963	3,0	6,2
1964	7,2	3,5
1965	6,3	4,8
1966	7,7	4,0
1967	2,1	6,3
1968	6,1	5,4
1969	0,6	7,4
1970	2,2	5,6
1971	3,5	8,7
1972	15,5	4,6
1973	24,0	4,8
1974	7,2	7,0
1975	15,8	3,6
1976	20,6	1,5
1980	29,4	1,7
1985	45,6	1,7

Data provided by "Exportkhleb"

The fact that the chronic crisis of collective farming and shortage of foodstuffs were a severe structural problem of the socialist economy was as clear to Mao's successors in the late 1970's as it was to Stalin's in Russia in 1953.

In CPR the production of food grain per one worker in agriculture, which was 946.5 kg/person in 1952 and 1,010 kg/person in 1957, declined to 972 kg/person in 1976[37]. For data concerning consumption per capita, see table 13.

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[37] Li Chengnui and Zhang Zhuoynuan. *An Outline of Economic Development (1977-1980) in China's Socialist Modernization.* Bejing, 1982. P. 12.

Table 13[38]*. Per Capita Consumption in China (per year)*¦

	1957	1978
Grain (kg)	203,0	196,5
Oil (kg)	2,4	1,6
Cotton fabrics (feet)	19,5	19,1

The reaction of Chinese leaders to this problem was quite similar to the past reaction of Soviet leaders. In 1970-1976 China's import purchases of grain were approximately equal to 2.25 million tons. In order to gather foreign currency needed for purchasing foodstuffs and importing production equipment, China also tried to increase raw materials production and export, mainly oil (growth from 0.2 million tons in 1970 to 13.3 million tons in 1980). But resource limitations were too strict and evident for China to follow that way. By the end of the 1970's the crisis of power engineering turned into one more critical problem for the Chinese economy.

In 1976 the coal deficit amounted to 10 million tons. In 1977 one quarter of industrial enterprises and 20-30% of industrial equipment worked with lowered power because of fuel and energy shortages. China owned farming equipment with a total productive capacity of 200 million horsepower, but a limited supply of diesel oil allowed for using it only 1-2 months[39].

A substantial component of the fuel and energy crisis was inefficient use of utilities, a trend peculiar to socialism. Energy consumption in China in 1976 was almost equal to that of Japan, while GDP was three times lower.

In 1977-1980 attempts were made to mould economic growth, including those based on importing complete plants, but they struck against strict resource limitations. It was found out that if all capacities specified by contracts were put into action, the national economy could by no means be supplied with enough power resources. Though the share of power engineering in the structure of investments was increasing (18.0% in 1971-1975, 21.4% in 1977, 23.7% in

[38] Lardy N. *Agriculture in China's Modern Economic Development*. Cambridge, 1983.

[39] San Shangqing and Chen Shengchang. *Set Up of Production in China's Socialist Modernization*. Bejing, 1982. P. 164-166.

1978), the poor resource base was not able to satisfy the requirements of the power-consuming national economy. As early as in the beginning of 1970 the excessive exploitation of oil-fields and lack of balance between the volume of mining and explored resources bear their consequences. It becomes evident that not only intensifying production, bur also keeping it at a steady rate is not easy. Coal and petroleum mining decreased in 1980.

Thus, the difference between China in 1970 and the USSR in 1950 lied in the fact that China at once faced three factors that placed obstacles in the way of its growth in the framework of socialism: a) agricultural crisis and chronic shortage of foodstuffs; b) impossibility to provide high growth rates of energy production in order to satisfy the requirements of a power-consuming economy; c) limited possibility of increasing raw materials export for ensuring food purchases and machine-building import. This was followed with lower rates of industrialization and huge free labor resources in the countryside. The logic of the economic situation literally pushed the Chinese government towards the path of profound reforms and abandoning the socialist development model, no matter what its ideological prejudice contained[40].

Leaving socialism with preserving economic growth is possible only at early stages of industrialization, when the potential of the traditional peasant sector is retained, on whose base market economy (parallel to that of the state) will grow (as it was in China). After basic reserves of the traditional sector are exhausted, any strategy aiming toward renewing market growth demands serious structural reorganization of the modern industrial sector and is inevitably followed by a fall in production volume.

In the USSR, where a rich resource base didn't confine socialist growth, as a result of the crisis of the early socialist growth model (based on broad resource redistribution from agriculture) came a considerable modification of socio-economic structures, the formation of so-called highly developed, ripe socialism.

While the same political and ideological appearance was preserved, the basic characteristics of socio-economic development underwent qualitative changes in comparison to those typical for the beginning of socialist accumulation.

The fundamentals of social consensus, which secures the stability of the present political institutes system, were

[40] The above stated certainly doesn't imply that the USSR would have repeated precise China's development trajectory provided it had had poorer resources, or that China's development would be identical with Soviet if it only had had richer resources. Vital differences in traditions, dominating norms of behavior inherited from agrarian society inevitably give unique, specific traits to the market evolution of the countries (see, e.g.: Vasiliev L. *Confucian Civilization. Asia and Africa Today.* 1996. #2. P. 26-37). The above stated is about something else. Irrespectively of the country's specificity different provision with resources becomes a significant factor, which determines the level of development when potential of socialist growth is exhausted.

changing. While during the period of industrialization, political structures rest mainly upon the most mobile groups able to adapt themselves to the rapidly changing economic conditions that clear the way to fast social advance, then during the following years, resting upon groups oriented toward preserving status quo plays a more important part. Correspondingly, in ideology the accent little by little shifts from stereotypes of a hostile encirclement and "radiant future" to stability and social guarantees. Not till this phase did the well-known thesis appear about "sobes" (based on social guarantees) the nature of socialism, in which weak motives to work are the consequence of a surplus of social guarantees, but not immanent features of the socialist economic mechanism.

At that time an image of late socialist economy was being formed, which contained the fall of economic growth rates against a background of conservatism for production structures formed during previous stages. However, the running costs of outdated and ineffective factories and industries increase more and more. Key industries (which determine the dynamics of scientific and technological advance) start being structurally backward in comparison with those of highly developed market economies. The very stability that became the symbol of belief costs more and more.

Since the early 1960's a significant knot of socio-economic problems has been tied around the prices of basic goods for public consumption.

During the first stages of socialist accumulation, steady prices under no circumstance could be a dogma. In the 1930's retail consumer prices repeatedly and sharply increased. When the post-war currency reform's deflationary potential was over and additional resources were needed to be invested into agriculture, Soviet leaders decided to increase prices temporarily. Serious disturbances in Novochercassk, suppressed by military forces, showed a striking example of public reaction upon price growth. The lesson learned by Soviet leaders from those bloody events was that prices of basic consumer goods are a pledge of political stability, and they mustn't be touched[41].

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[41] "Generally speaking, Alexei Nikolaevich (Kosygin, Chairman of the Council of Ministers of the USSR in 1964-1980 – E.H.) understood the importance of retail prices reform. Yet, when

Meanwhile growth in agricultural production costs, accompanied by fixed price demands, increased the budget expenditure on investments and increased their share in GDP.

"Well-developed socialism" obtains such characteristic features:

- *constant increase of the budget load, caused by contributions to agricultural products (instead of broad resource withdrawal from agriculture);*
- *steady growth of foodstuffs import, which superseded their broad export during industrialization;*
- *increasing shortage of food.*

The process of industrialization is a transition between the relatively stable pre-industrialization state and just as stable, though fundamentally different, post-industrialization state. The march of events in Socialist countries during the 1970's fits this hypothesis perfectly. After the potential of resource redistribution from the traditional sector is exhausted, the capital output ratio starts decreasing, as well as economic growth rate. Further chances of increasing per capita gross domestic product, as was demonstrated by the experience of well-developed market economies, are closely connected to decreasing the power-consumption rate, increasing the export of processing industries and effective structural shifts in modern industrial sectors. These circumstances are extremely hard to reach within the framework of socialist institutions. Falling capital output ratio whittles away striving for accelerating economic growth at the cost of increasing the rate of savings.

Still, even against a background of all discords, the current economic structure was relatively stable. The economy was self-sufficient, well provided with resources, its dependence on import limited; foreign debts low, and the system of social

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Garbuzov (Minister of Finance at that time) happened to touch upon that subject, his answer was clear and unambiguous: "That sort of thing is done only once in a person's life. Don't involve me in this". It was intended that Khruschev's rise in prices, when prices of meat were raised "temporarily" (for 2-3 years), turned out the tragic events in Novochercassk. Kosygin trembled at the thought of repeating something similar, and put off problem solving in an unusual manner of "let it be flood, if it would be after us". – (V.Pavlov. *Was the chance lost?* Moscow, 1995. P. 62)

guarantees relatively well developed (in comparison to other countries of similar income rates).

By the late 1960's, having nearly used up the potential of redistributing the labor force from the village to the city, the Russian economy reached a level of development which can be compared to the lowest verge typical for economically developed countries – members of OECD. In 1965, per capita GDP was $1,103 per capita in prices of 1964. At this very rate of income, the increase in the processing industry's export turned into a necessary prerequisite for growth. While in the group of countries with a level of development similar to that of the USSR, in the early 1960's (per capita GDP was $800-1,000 in prices of 1964 and the share of agriculture in employment was 25%) the standard volume of resource export is approximately equal to the processing industry's export, then in the next group (per capita GDP exceeds $1,000 per capita) the processing industry's export is three times as large as resource export.

Depleted possibilities for growth within the framework of the traditional socialist model leaves two strategies for the communist elite: either start to reorganize economic mechanisms of regulation to renew market regulators, which would overcome inner obstacles on the way to growth within the socialist model, creating prerequisites for decreasing power inputs into GDP, and increasing the quality and borrowing power of the processing industry's production and its share in GDP, or resign itself to loosening economic dynamism, and laying special stress on the stability and steadiness of current structures.

It is generally known that the question of expediently carrying out economic reforms was the core of internal polemics concerning the strategic problems of social and economic development in the USSR during the mid-late 1960's[42]. This has to do with Eastern European satellite as well. Those were the years when attempts were made to supplement traditional hierarchical regulators with a system of stimuli, to widen factories' rights, to restore some elements of market regulation within certain limits. Here could be mentioned the reforms of 1966-1968 in the USSR, of 1957-1958 and 1965-1969 in the Czechoslovak Socialist Republic, of 1965-1969 and 1973-1979 in the Polish People's

[42] Sutela P. *Economic Thought and Economic Reform in the Soviet Union*. Cambridge, 1991; Mau V. *In Search of Balanced Development*. Moscow: "Nauka", 1990.

Republic, of 1965-1969 in the German Democratic Republic, and reforms in the Hungarian People's Republic that were launched after 1957.

Analysis of their course and results permits drawing certain conclusions[43].

1. The socialist economy is an integrated system and easily tears away or formalizes transformations that do not affect its fundamental characteristics. Uncoordinated attempts to introduce new indexes and extend the rights of economic units stop affecting the work of a deep-rooted hierarchical economy's mechanisms right after the short period of top managerial interest in innovation is over.

2. Every stable transformation includes a minimum set of elements that considerably change the face of the economy:

(a) sharp widening of the markets' role in regulating economic activities, liberalization of a considerable share of prices or appearance of dual prices (administrative and market);

(b) cardinal widening of economic units' independence in what concerns forming a production program and system of economic ties;

(c) introducing (in different forms) a stimulus dealing with the financial results of economic activities;

(d) legalizing the private sector, at least in some sectors of the economy.

3. Stable reforms (Yugoslavia, Hungary, China, and Vietnam) considerably approach transformed social economies into market economies of import-substituting industrialization. They are united by the important role of state in regulating the economy, bureaucratization of economic life, high rate of tariff and non-tariff protection of the home market against the background of a well-developed existing system of commodity exchange and legal private sector. With the rebirth of domestic business undertakings, its dynamic

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[43] About hardships of guaranteeing reform steadiness within the framework of the socialist system see, Kornai J. *The Socialist System. The Political Economy of Communism.* Oxford, 1992; Balcerowicz L. On the Reformability of Soviet-Type Economic Systems. – *In the Evolution of Economic Systems: Essays in Honour of Otta Sick.* London, 1990. P. 193-201; Balcerowicz L. The Soviet-Type Economic System, Reformed System and Innovativeness. – *Communist Economic.* 2. #1 (1990). P. 3-23.

reaction upon economic liberalization and growth of private savings opens the path for export-orientated market growth.

4. Integrated economic reform always puts to the test the stability of mechanisms of social and political control in a socialist state. It inevitably causes growth of social differentiation and acceleration of overt inflation rate, which undermines the basis of the socialist regime's ideology – egalitarianism and stability. The main necessary condition needed for successful reform lied in preserving effective political control over the authoritarian regime, which would be able to guarantee the capability of the hierarchic administration's mechanisms during the period of reform (system of directives, rationing, state control over prices), to oppose strict budget and monetary policy to inflationary splash, to not allow a high inflation rate and considerable disproportion between fixed and free prices to take root.

5. All successful reforms were launched in countries where the process of socialist industrialization was not over, and where excess labor reserves still remained in agriculture (China in 1978, Vietnam in the mid 1980's, SFRY in 1953, Hungary in 1957).[159]

Some evident obstacles standing in the way of reforms started at the stage of "well-developed socialism":

(a) depletion of resources for socialist growth and impossibility to use anesthesia for increasing the general level of income in order to extenuate the problem of growing social differentiation;

(b) impossibility to form new economic sectors at the expense of overpopulated agrarian resources;

(c) increasing (with the system's aging) conservatism of the political and economic elite, being in the habit of living and working under stable conditions and unwillingness to perceive serious social and economic innovations.

6. In cases of consistent reforms that started in comparatively well-developed socialist economies (Hungary 1957-1968), two circumstances predetermine the necessity of keeping a high rate of budgetary redistribution of resources and retarding economic growth. Firstly, there is the crisis of the industrial structure's model, formed under conditions of socialism, and secondly, swollen during the stage of well-developed socialist social programs. These circumstances hamper the process of reforms extremely.

Reforms launched in China in 1978 appeared to be the most profound, broad and significant. They paved the way for this country's gradual waning of the socialist development model. In this case, the start-up was given by the crisis of early socialist growth followed by the absence of sufficient resources (inner and outer) needed for forming a stable, mature socialist society. In China during the late 1970's (as well as in the USSR during the early 1950's) political leaders realized the agrarian crisis as a vital economic and political problem, a serious obstacle on the path of further economic growth.

In the decree of CPC central committee's December (1978) plenum there is a record of the fact that per capita grain production in 1978 is approximately equal to the level of 1957, and a conclusion is drawn about the impossibility of raising industry without raising agriculture. Measures primarily planned for the purpose of developing agriculture were similar to the measures chosen by Soviet leaders in 1953: they were proclaimed necessary for increasing agriculture's share in the investment structure (up to 18%), share of current expenses for agriculture in the budget structure (up to 8%), increasing purchasing prices (up to 20%, for over and above plan deliveries – up to 50%), remuneration of labor was restored communes, pressure upon personal and subsidiary plots was diminished, etc[44].

Yet at the turning-point, China still was the country with a dominant rural population and agrarian traditions, where part of the community was less important in comparison with Russia. The powerful peasant movement for transition from statute labor to tribute (transition to hearth-money, or to farmstead tax, in terms of socialist euphemisms) envelops the whole country.

The rigidity of stimuli speaking for this transition can be illustrated with a paper that served as one of the points of departure for agrarian policy – a receipt signed by 21 peasants from the Fenian district (December, 1978): "We are sharing the land among farmsteads, the chief of every farmstead seals and signs the paper. If we are able to work, every farmstead guarantees annual assignment concerning delivering food tax and we will not ask the state for money and grain. If we do not keep our word, we agree to bond our heads. Every member of brigade guarantees maintaining our

[44] *Economic Reforms in CPC: Transformations in a Village, 1978-1988.* Documents. Moscow, 1993. P.8-37.

children under 18"[161]. During the few years that passed before this eloquent document was written, 60 persons died of starvation in the brigade where its authors labored.

Of significance is that in 1979-1980, official papers aimed at containing radical changes in the countryside. Already in a CC of CPC document dated September 27, 1980, "Some questions of further development and responsibility for the perfection of the system of production in agriculture" we read, that "collective farming is an unshakable base of our economy's movement along the path of modernization, having indisputable advantages in comparison with individual farming." In this very document, recommendations are made to restrict spreading farmstead tax to outlying districts, remote and poor areas[45]. But much tougher resource limitations in comparison with the USSR, in combination with the powerful pressure of the peasants' initiative forced the Chinese elite to recede, de facto to follow the way of de-collectivization. The transition towards tribute was sanctioned ideologically only after becoming a done fact[46].

In peasant country, all the above mentioned gives incentive for launching market mechanisms.

Simultaneously, another process that influenced further evolution of the Chinese economy began: liberalization of foreign trade.

After relations with the USSR were broken in 1959, China tried to carry out a policy of relying on itself and in every possible way limited its foreign trade; its foreign policy was very similar to that of the USSR in the late 1930's. Since 1972 the situation has changed toward somewhat bigger openness of foreign policy. But by 1978 it became obvious that under the conditions of countries poor in resources, which also has to import foodstuffs, the hope of increasing raw materials export is unrealistic. At this stage of relatively early development, creating the necessary prerequisites for increasing exports from the processing industry is an evident condition of continuing economic growth. Balance of the

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[161] V.Gelbras. *Economic Reforms in CPC*. Moscow, 1990. P. 9.

[45] *Economic Reforms in CPC: Transformations in a Village, 1978-1988*. Documents. Moscow, 1993. P.36-45.

[46] V.Gelbras. *Economic Reforms in CPC*. Moscow, 1990. P. 123; Berliner J. *Perestroika and the Chinese Model*. Brandeis University, 1993.

foreign trade deficit that appeared in 1978-1980 forces making a decision about decreasing state investments by 40% and slowing down industrial growth.

The reaction of the Chinese political elite toward the evident crisis of the socialist growth model lied in the policy of radically opening the external economic sphere: firstly, attracting foreign investments resting upon using free zones and redistributing excessive labor resources from agriculture to labor industries orientated on export. China not only renewed the effect of market mechanisms inside the country, but also turned from self-sufficient import-substituting industrialization to the strategy of export-orientated growth.

It is clear that in the late 1980's-early 1990's China was not a country with a liberalized external economic trade sector in the full sense of the word. The import of state factories was limited and currency remained non-convertible. Yet for privately owned enterprises, including joint ventures and foreign factories, especially acting in free economic zones, there existed a broad possibility for duty-free import and freedom of export. Precisely the littoral zone, where this policy was applied most broadly, became the main center of export-orientated economic growth[47]. The result lied in explosive export growth (10.2% annually in 1980-1990, 12.9% in 1990-1994) and increased share of production among processing industries (from 48% in 1980 to 81% in 1993), which certainly influenced the development of other branches and sectors of industry.

Thus, China faced inner limitations of socialist industrialization while being at a far lower level of economic growth than the USSR, having not exhausted the industrial potential of traditional agriculture. Redistributing these resources allowed it to form a new market export-orientated sector along with an ineffective state industrial sector, owing to which high rates of economic growth were retained.

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[47] Wei Sh. The Open Door Policy and China's Rapid Growth. In: Ito B. and Krueger A. (eds.) *Theories in Light of East Asian Experience*. Chicago, 1995. P. 74.

Last Attempt

The objective difficulties of reforming mature socialist industrialization and also the experience of Czechoslovakia, where such reforms paved the way to political destabilization of the regime, prompted Soviet leadership to abandon serious market transformation by the end of the 60's. Still, *the rich resource base, structural rigidity of the economy and totalitarian political control seems to have guaranteed the USSR and its Eastern European empire long-term stability with low or zero rates of economic growth. Although the potential of socialist industrialization is exhausted and the economy reached its utmost level of efficiency, which is determined by the basic characteristics of the chosen economic model, it is able to function along that border for a long time.*

Using Marxist terminology, it would mean that labor-management relations formed during socialist industrialization became obstacles on the way toward further development of productive forces. Yet the ruling elite was not interested in radical changes, and society did not have enough strength to break the existing institutes.

By the end of the 70's, enthusiasm around the world was fading away as well as anxiety about rapid growth of the socialist model. Nevertheless, the notion of its stability and firmness still prevailed in common awareness outside and inside of the socialist countries.

Further events deranged this pattern of late socialist world. In my another work[48] I tried to show the relations between erosion of the socialist system and real opposition as to the interests of ruling communist elite, and I tried to analyze the processes of privatization that started already inside the socialist system.

In this case, I would like to place emphasis on the different component that the predestined rapid historical collapse of a solid and durable system seemed to be. That component is the peculiarities of the nature of socialist growth during the 70's – 80's.

In economic history, examples of means of development that were internally unstable, reversible, and those that as their

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[48] Gaidar E. *State and Evolution*

main support were using resources whose availability was changeable[49] are well known.

Economic growth in the USSR and countries of EMAC in 1970-1980 was an attempt to cross the borders of inner limitations of the socialist growth model, and it bore an unstable nature. It paved the way for a sharp crisis and break-up of the system. The most important factors that caused instability of this system were bound up with the basic characteristics of a socialist economy, its low productivity, inability to produce competitive export from the processing industry, ensuring radical decrease in power-consumption production.

The hypothesis that I am trying to prove lies in the fact that closely related economic development between the USSR and member countries of the CMEA (Council for Mutual Economic Assistance) during the 70's – 80's was just as unstable. This way of development was not able to lead the country even to a stagnated, but stable socialist economy with zero or low and stable rates of growth. Correspondingly, the production collapse in post-socialist countries was caused not only by objective difficulties of transition, but also by the impossibility of stable support for economic structures that were formed by growth of the 70's – 80's.

Two imminent factors played an important role in late socialist development. They were the discovery of a high-performance oil deposit in Western Siberia and spasmodic rise in fuel prices in the world market after 1973.

Oil money became a substitute for resources from the traditional sector. Then new sources of development financing arose, which substituted former turnover tax on agrarian goods (fast increasing incomes of external economic activity), currency for providing complete supply of production equipment and agricultural production purchase, energy resources that allow for building up production and income per capita. Instead of sending additional free resources to provide a gentle way out of socialism, instead of market regulators return, they are used to increase GDP per capita to the level where it could be steadily supported inside the socialist model (graph 9)

With the beginning of the 70's, economic growth in the USSR became more anomalous. The ratio of primary goods in export rapidly increased but production of the processing industry decreased. In the export ratio of machines, equipment, and means of transport for advanced capitalist countries, it decreases from 5.8%(1975) to 3.5% (1995) (total export from 21.5% 1970 to 13.9% 1985, table 14)

[49] Typical example is the development of the Nigerian economy in the 70's –80's

Graph 9

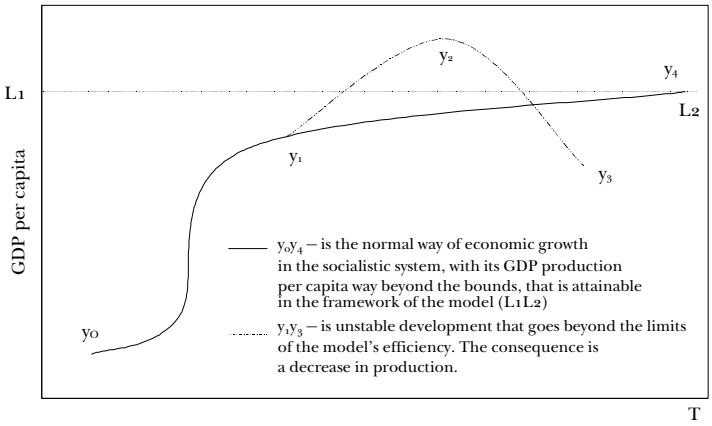

Table 14. External trade structure for the USSR

share in export, %

	1970	1975	1980	1985
Machinery and equipment	21,5	18,7	15,8	13,9
Fuel and energy	15,6	31,4	46,9	53,7

Source: State Statistics Committee

In striking contrast to the basic tendencies of world development is the dynamics of GDP energy consumption. During 1970-1985, in those countries that by 1970 were at a level of development close to that of the USSR (in Japan and Italy where GDP per capita at that time was 1/3 greater than that for the USSR), GDP energy consumption was one third of the previous size. In the USSR, by using realistic correction of the GDP deflator, its growth in 1970-1985 was 1.5 – 1.6 times as large[50]. Energy consumption during those years increased 1.73 times.

The quasi-high part of armament expenditures in GDP increases. By virtue of specific expenditures of the USSR, taking into account the war and disproportionate prices, an accurate description of such a process is rather difficult. But available information about the size of the armament issue and the well-known fact about attaining a military and strategic parity with the U.S. at the very same time confirm experts' evaluation that noted growth of the military load on the economy in the 70's (table 15).

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[50] Calculations are based on the *CIA Handbook of Economic Statistics.* Washington. Different years.

Soviet leadership at the very beginning of the 70's gambled on using big energy, financial and currency reserves to continue competition with the West in the military field as well as the population's standard of living. The most vivid example of such a policy is rapid growth of provisions import.

Table 15[51] Evaluation of Military Expenditures in GDP for the USSR

%

	1970	1980
Ofer G.	13,0	16,0
Steinberg D.	13,3	13,9

Soviet leadership at the very beginning of the 70's gambled on using big energy, financial and currency reserves to continue competition with the West in the military field as well as the population's standard of living. The most vivid example of such a policy is rapid growth of provisions import.

Under conditions of constant agrarian crisis provisions import, including forages, one factor becomes significant, which determines food consumption growth (table 16, for grain import table 12)

Table 16. Agrarian Import for the USSR in 1970-1985

	1970	1975	1980
Aggregate volume of agricultural import (billions USD. Actual prices)	2,7	10,0	19,5
Meat import (thousand tons)	165,0	515,0	821,0
Butter import (thousand tons)	2,2	11,6	249,0

Source: State Statistics Committee

[51] Ofer g. Soviet Economic Growth: 1928-1985. *Journal of Economic Literature. 25* (4 December) P. 1767-1833; Steinberg D. Trends in Soviet Military Expenditure. – *Soviet Studies.* 1990. 42 (4). P.675-699; Gorbachev M. gave an evaluation of aggregate military expenditures in the USSR in the 80's as 20% of GDP.

Meat consumption (including meat products) that was 48 kg per capita in 1970 increased to 58 kg per capita by 1980 and 62 per capita by 1985 (in Italy by 1970 it was 59 kg).

One more remaining anomaly of growth was the attempt to compensate the chronic agricultural inefficiency inherited from early socialist industrialization by a wave of additional resources. The agricultural part in aggregate volume of investments grew from 16.7% in 1966-1970 up to 20% in 1975-1980. The general volume of investments in the agrarian sector (comparable prices, official data) in 1981-1985 in comparison to1966-1970 is 2.44 times as large. Big land-improvement construction began. Irrigated areas in 1970-1985 increased by 82% and drainage areas doubled. The supply of mineral fertilizers in 1970-1985 in terms of 100% content of useful mater was 2.5 times as large (from 10.3 to 25.4 million tons). *This strong resource flow had no influence on growth of the efficiency of the agrarian sector* (table 17).

Table 17. Gross Harvesting

average per year, million tons

	1971–1975	1981–1985
Grain	181,60	180,30
Cotton-wool (in terms of fiber)	2,47	2,45
Sugar-beet	71,00	76,40
Oil-bearing crops	6,69	5,71
Flax fiber (thousand tons)	456,00	377,00
Potatoes	89,80	78,40
Vegetables	23,00	29,20

Source: State Statistics Committee

Meat production growth in livestock for slaughter (12.3 million tons in 1970, 17.1 million tons in 1985) was totally supported by grain purchasing import.

The events of 1970-1985 show us that social deformation of the traditional sector caused by the socialist model of industrialization is rather deep and hardly reversible. Arbitrarily, big resource flow is not able to compensate consequences on the stage of advanced socialism.

Under these conditions, many similar traits of economic growth in the 60's and in 1970-1985 differ fundamentally. In 1970 (if we exclude trade with member countries of the CMEA, which is not market trade), the USSR remains a country with a relatively closed economy, with high material

well being of existing economic structures typical for the socialist model. It should be influenced by events that happen on the world market. Nevertheless, by 1985 the role of external economic links in the economy rapidly grew. Financial stability (budget revenues from external trade), preserving the consumption rates that were achieved (vast agricultural import), functioning of the agrarian sector (imported forages), functioning of enterprises that were built on completely imported equipment, all depended on current external trade[52].

Meanwhile, incomes brought into the country through foreign tradeare more and more influenced by the situation on the fuel and energy resource markets. The inauspicious instability of the state of the market brings about a new and particularly complicated problem to be solved by the socialist economy: to continue functioning under the conditions of contracting resource provisions. It was not only a matter of more or less stable economic stagnation, but of the threat of an acute crisis that is followed by production and consumption collapse. These processes turned out to be out of the national authorities' control. Further, the possibility to support existing energy consumption also turned to be doubtful. The difficulty of such a problem was related with the specific character of the oil industry economy. Stability of the whole economy of the USSR and socialist network was currently dependent on its position in fuel and energy world markets.

Developing new rich oil deposits allowed for initially providing extremely low capital intensity and prime cost of every ton of extracted oil. However, when the most accessible deposits were exhausted and new ones were developed which were medium to small in size, deep, and difficult to access, resource consumption of extraction increased not by percentages, but by times and degrees.

The economy, which was adjusted to make use of big oil income produced at the early stages of developing rich deposits and using it to increase military expenditures and provision imports, now had to increase investments into the

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[52] S. Glaziev correctly noticed the connection between the growing crisis of late socialism with the overload of the export sector. Glaziev S. About Openness and Sensible Defense of the Russian Economy. – *Reform from the Standpoint of American and Russian Scientists*. Moscow, 1996. P.238.

fuel and energy complex in order to support the existing level of oil extraction.

Earlier, by the end of the 60's, the economic situation in the USSR was rather stable because even with extremely high energy consuming GDP reserves of fuel and oil resources, there was enough to supply it with energy for a long period of time. The strategy of growth that was chosen was based on an accelerated increase of oil extraction and oil export. The strategy made the functioning of the socialist economy a hostage of not only the availability of fuel resources, but also of regular import of some unique deposits like Samotlor. It was beyond any reality.

All events that happened in the USSR during 1970-1980 greatly influenced the socialist member countries of the CMEA (table 18). As was mentioned before, member countries of the CMEA cannot be regarded as independent subjects of economic policy because of the home trade ratio that was ensured by international clearing agreements.

Table 18. Reciprocal trade ratio for member countries of the CMEA as to the general volume of export and import

	Export ratio		Import ratio	
Country	1970	1985	1970	1985
USSR	54	55	57	55
Bulgaria	76	76	73	77
Hungary	62	54	65	51
GDR	69	63	66	64
Cuba	74	89	63	81
Mongolia	93	99	97	97
Poland	61	67	66	72
Romania	50	47	48	55
Czechoslovakia	65	72	64	76

Source: State Statistics Committee

Rapid growth of Russia's energy export created the opportunity to increase GDP per capita in member countries of the CMEA in two basic directions. First, reduced prices for fuel in reciprocal trade stimulated an increase of its purchase in the USSR for following direct re-export or for an increase in power-consuming production export. Fuel import by

countries of the CMEA in the 70's approximately doubled (table 19).

Table 19. Energy import of member countries of the CMEA in 1970-1980

	Fuel and energy import (million tons of equivalent fuel)		Oil import (million tons)	
Country	1970	1980	1970	1980
Bulgaria	16,6	33,2	–	–
Hungary	11,7	23,7	4,3	8,3
GDR	27,6	49,5	10,3	21,9
Cuba	8,7	15,1	4,3	6,0
Mongolia	0,4	0,9	–	–
Poland	15,4	35,4	7,2	16,3
Romania	6,2	31,8	2,3	16,0
Czechoslovakia	22,2	44,7	9,8	19,3

Source: State Statistics Committee

Secondly, growth of oil supplies from the USSR could be covered by the export of the globally non-competitive machine-building industry, avoiding limitations on GDP growth that were related to the inefficiency of the processing industry. During 1970-1985, machines, equipment, and means of transport imported to the USSR (in actual prices) from CMEA countries increased from USD 2.75 billion in 1970 to USD 10.36 billion in 1980 and USD 20.1 billion in 1985. Against that very background, it becomes possible for CSR to increase machine-building export from USD 1.9 billion in 1970 to USD 7.8 billion in 1980. The increase in GDR machine-building export at the same time was from USD 2.4 billion to USD 9.7 billion.

Under such conditions not only an increase but preservation of the existing production volumes in CMEA countries totally depended on the continuous delivery of Soviet energy resources because it was for reduced prices.

Signs that the growth model was exhausted were based on the oil incomes, which showed up in the early 80's. In spite of continuous rapid FEC (fuel and energy complex) investment growth (in 1986 they doubled from the level in 1975) and part of FEC in aggregate volume of investment, oil extraction growth stopped. In 1980 603 million tons were extracted, in

1985, 595 million tons. Oil export became stable: 119 million tons in 1980, 117 million tons in 1985. During 1970-1980 the real volume of export increased by 62% and cost volume, as a result of favorable export price dynamics, increased 3.7 times. During 1980-1985 the real volume of export increased only by 7.4% and its cost volume reached a maximum in 1983 (USD 91.4 billion) began to decrease (in 1985 it was USD 86.7 billion).

As a matter of fact, from that time on the mechanism of disastrous decay of the socialist system and, therefore drastic decrease in production and standard of living was launched. Feverish attempts to restrain a decrease in oil extraction in 1986-1987 led to over-forcing deposits and accelerated decrease in further extraction. The economy fell into a vicious cycle that consisted of means for investment support of oil extraction shortage, impossibility of their fast redistribution under conditions of the inert socialist economic structure, decrease in oil extraction, intensified power-consuming national economic crisis, further reduction of oil industry investments and accelerated decrease in production. Oil extraction in the RSFSR decreased from 542 million tons in 1985 to 462 million tons in 1991 and stabilized at the level of 307 million tons in 1995 (in the RSFSR, 304 million tons was the level of 1971).

At the very beginning of the 80's, the USSR lost all bygone freedom of financial maneuvers. Active formation of commodity credits for financing different numerous building sites led to the problematic situation. In 1981, revenue from credits given to other countries (USD 2 billion) covered less than 30% of credit given to the USSR (USD 6.4 billion). Restitution of old credits was provided at the expense of newly received ones. Their structure deteriorated with time. The ratio of medium-term and short-term debts increased. A constant increase in expenditures to cover the debts became a vivid reflection of the situation. In 1984 its balance was USD 5.9 billion, in 1986 it was USD 15.1 billion. By the beginning of Perestroika, the increase in foreign debt looked like an avalanche. In 1985, when Gorbachev came to head the country, only on the surface did the economic situation seem to be depressingly firm. In practice, the possibility of not only developing but preserving the existing level of production and consumption totally depended on factors that were out of control. They were the state of the world's oil and gas markets, discovery of new deposits with extremely high efficiency, opportunity of obtaining free long-term credit on the world's financial

markets with low interest rates. However landslide of oil prices on the world market, reduction of the absolute level of export entering the country (USD 91.4 billion in 1983 and USD 86.7 billion in 1985) showed that a miracle was not going to happen.

The history of Perestroika's economic policy: basic economic mistakes by Gorbachev's team, connection between the increasing budget crisis and anti-alcohol campaign and an attempt to force economic growth, loosing control over the monetary base, increasing suppressed inflation, economy of populism and the expansion of social outlays in 1989-1991, exchange crisis, attempts to patch up gaps in an economy that is tearing at the seams by withdrawing gold reserves, using foreign currency reserves, confiscating businesses' currency accounts, state bankruptcy and failure of hierarchical economic mechanisms – all this is reflected in economic literature and is not a topic of this paper[53].

It should be mentioned that objective appraisal of the stated facts and the very character of economic growth in the 1970's - early 1980's forces us to admit the fact that the role of Gorbachev's and Rijcov's economic mistakes in the failure of socialism was not as significant as it is considered to be. Indeed, in many respects what they did was contra-effective and fallacious in the current situation. Yet those mistakes determined only the terms and particular mechanisms of the crisis, but not its origin and dimensions. The crisis itself was unavoidable.

Attempts to cross the borders of the economic growth rate achievable under the conditions of the socialist model led to one more result. By the late 1960's, two countries of socialist camps (German Democratic Republic and Czechoslovak Socialist Republic) had their per capita GDP standard exceed the verge, dividing the group of well-developed democratic countries. Not accidentally, in these very countries in 1989 the events revealing the failure of communist regimes started. However, till the end of the 1980's, these countries were vassal, dependent, formed part

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[53] See, e.g.: Gaidar E. Inflationary Pressure and Economic Reform in the Soviet Union. – *Economic Transition in Eastern Europe*. Oxford, 1993; Gaidar E. *Russian Reform*. Cambridge, 1995; Lacis O. *What Happened to Us and What Will Happen*. Moscow, 1995; Sinelnicov S. *Budget Crisis in Russia: 1985-1995*. Moscow, 1995; Aslund A. *How Russia Became Market Economy*. Washington, 1995.

of the Soviet Empire and were unable to become democratic on their own.

In this connection, events taking place in the USSR were really signified: being inwardly unbalanced and unstable, based on economic growth from oil revenue by the beginning of the 1980's, tightly approximated the country's per capita GDP standard toward the standard of the group of well-developed democracies. Urbanization, development of education, increased information concerning the outer world, gradual increase in the strata of society with middle class consumption structure, - everything slackened the totalitarian regime. After the first timid liberalization steps were undertaken by M. Gorbachev during early Perestroika (1985-1987), these very factors determined the appearance of a mighty democratic wave, the control over which was soon lost. The economic crisis generated by decreasing oil revenue and failure of the economic growth strategy followed during the past two decades gave this wave additional strength. Deprived of power support from Moscow, communist regimes of Eastern Europe started collapsing.

Common blame placed on Gorbachev is for starting with political liberalization instead of economic reform (as Chinese leaders did). From the relationship between the economy and politics, it is reasonable to ask whether he had other real opportunities. Indeed, Soviet leaders of the early 1970's, especially L. Brezhnev, who bet on inwardly unstable, economic growth based on oil revenue, chose the strategy that made the disastrous failure of socialist political institutes inevitable.

Since the above-formed hypothesis about the extreme inner instability and artificiality of economic growth in the USSR and countries of Economical Mutual Aid Council starting with the 1970's, it is natural to assume that after this strategy's failure the volume and structure of production and consumption should become stabilized on the level similar to that of the 1970's. Distinctions from this trend should first appear in these structures of a socialist economy, whose parameters for some reason are similar to those in economies (not passed through socialist experiment) with an analogous level of development.

In 1995 against the background of stabilization of market institutes, financial and monetary systems in Russia, the volume of oil mining amounted to 307 million tons (304 in

1971)[54]. Grain import amounted to 2.1 million tons in 1994, 0.6 million tons in 1995 (the USSR in 1970- 2.2 million tons). Strict decrease of grain export caused a fall in meat production to 5.9 million tons (RSFSR in 1970- 6.2 million tons). Low productivity of Russian animal husbandry made grain export especially ineffective. Against the background of market prices, increase in the share of cattle-breeding production in the structure of agricultural products, import was inevitable. Russian import of agricultural products in 1995 exceeded the level of the USSR in the 1980's (1995 – 1.2 million tons, 1980 – 0.82 million tons). Due to this, a fall of meat and meat products was less serious than a fall of production.

Considerable changes in the structure of the fuel balance, sharp fall of coal's share in it, increasing gas share during 1970-1980 agreed with the logic of comparative preferences and remained in post-socialist conditions.

In 1995 the production of cast iron in Russia amounted to 39.8 million tons (RSFSR in 1970 – 41.9 million tons), of rolled metal – 39.0 million tons (RSFSR in 1970 – 43.1 million tons). In metallurgy (after being restrained for twenty years) the process of bringing out open-hearth furnaces, increasing the share of oxygen-converter steel in the structure of output started, which is typical for well-developed market economies.

Failure of the socialist model caused a drastic fall in production and consumption in former socialist countries to a level similar to that of the early 1970's.

Any cost indexes of industrial production in a long period of time inevitably are extremely unreliable under Soviet or post-Soviet conditions because of unreliability calculations that bring prices to a comparable level. Nevertheless, if in the absence of better encompassing indexes we use CPI's deflators, we will see that the volume of industrial production in 1995 (50% of 1990) is roughly equal to the level of early the 1970's. Thus, as applied to Russia the hypothesis about production and consumption stabilization after the failure of socialism on the level of steady socialist maximum, preceding the stage of oil growth in 1970-1980, proves to be principally true.

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[54] There are no reliable statistics of foreign trade for RSFSR for the period preceding 1991. That is why we can use data for RSFSR while dealing with production indexes, but for indexes concerning foreign trade we must use the USSR's data as a whole. This is admissible because RSFSR production dominated Soviet export, and it obtained the most part of imported resources.

The failure of this strategy inevitably caused a breakdown of mutual clearing trade mechanisms within the borders of the Economic Mutual Aid Council, sharp decrease in the share of mutual trade in the structure of import and export of corresponding countries, limitation of energy import, and, correspondingly, of re-export for countries of Eastern Europe, stimulated structural reorganization aiming at decreasing power-consuming of their economies[55].

If the above stated hypothesis about the unstable nature of economic growth in 1970 - 1980 is correct, then it would be reasonable to assume that the measure of per capita industrial production fall after socialism's collapse is roughly equal to the improvement reached during this period. Thus, the dimension of fall should be the largest where economic growth was the most dynamic, and the smallest in economies whose growth rate was moderate[56].

In Eastern Europe the fall in industrial production appeared to be the largest in countries whose growth rate in 1975-1989 was the highest (Bulgaria and Rumania), and the smallest in less dynamic during those years (Czechoslovakia, Poland and Hungary). In the trough of after-crisis fall all these countries reached the standards of industrial production similar to those of 1975.

Now let us see what parameters of socialist economy of the 1980's most seriously differed from those of economies with an analogous level of development.

Among the most serious differences should be mentioned an essentially higher share of tax taking in GDP, lesser share of non-material, lesser share of export in GDP, lesser indexes of income differentiation, higher power-consumption of GDP. Thus, a well-developed socialist economy differs from a market with larger closeness, orientation toward production, energy inefficiency and egalitarianism. The chosen growth model influences the structure of consumption. So, while the consumption of foodstuffs was roughly equal to the standard

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[55] About the impossibility to preserve most structures in the Eastern Europe economy without specific trade conditions that existed in EMAC see: Balcerowicz L. *Socialism, Capitalism, Transformation*. Budapest, 1995.

[56] This peculiar rule was first noticed by J.Kornai in his paper "Transformational Recession". – Kornai J. Transformational Recession. A General Phenomenon Examined Through the Example of Hungary's Development. – *Economic Applique,* XLVI.1993(2). P. 181-227.

for countries with an analogues level of development, the indexes of motorization and installation of telephones were appreciably lower.

The share of tax revenue in GDP (including beyond-budget funds) decreased from 48.9% in 1980 to 31ed the1% in 1995 (Russia), but it still exceeds indexes typical for market economies of a corresponding development level (18-28%).[57] The share of nonmaterial increased from 37% in 1980 to 51% in 1996 and reached the standard typical for the upper group of average-income economies in 1994 (53%). It is hard to compare the ratio of export to GDP in the USSR and Russia because of trade specificity within the EMAC, and now within the Commonwealth of Independent States (CIS). Nevertheless, every estimation analysis shows an essential increase in the economy's openness. Indexes of income differentiation increased (Jeany's coefficient in 1992 – 0.289, in 1995 – 0.381). The ratio of high-income quintile and low-income quintile exceeds the standard typical of highly developed market economies, yet it still stays lower than the typical level of economies with per capita GDP similar to Russia's.

Restoration of market regulators caused tendencies to approaching post-socialist economies' structural characteristics to indexes peculiar to market economies of the same development level. Though even nowadays, as will be shown in chapter 6, post-socialist economies differ in the great volume of resource redistribution through the state budget. High power-consumption of production and less share of the processing industry's export in GDP are peculiar to them, - it will take years and years and violent efforts to change the situation.

Distinctive are changes in the structure of consumption. The consumption of meat and meat products appreciably decreased in comparison with the maximum (late 1980's) and reached the level of the 1970's (table 20).

Table 20. Consumption of meat and meat products in Russia

*kg**

	1970	1975	1980	1985	1990	1995
Per capita consumption	46	57	59	62	69	53

** In conversion into meat, without by-product of II category and raw fat*

Source: State Statistics Committee

Meanwhile, indexes of motorization and installation of telephones (which provided the most significant lag between the USSR's index and world trend in 1970) continued to grow (table 21).

[57] Calculations of the normative value of tax taking share in GDP conformably to specified per capita GDP have been realized by S.Sinelnikov and I.Trunin. the lowest border of an interval is when GDP is computed using current rate of exchange, the highest is when considering purchasing-power parity.

Table 21. The dynamics of motorization and installation of telephones in Russia

	1980	1985	1990	1995
Number of cars (per 1000 persons)	30,0	44,0	59,0	95,0
Number of telephone sets in a public network (million)	13,5	17,6	23,4	26,8

Source: State Statistics Committee

Neither Russian nor Soviet statistics have reliable data concerning the dynamics of families' provisions with videotape recorders and computers. But its rapid growth during 1990-1995 is evident.

Thus, while Russia's basic level of production and consumption turns out to be similar to the USSR's level before its oil spurt started, the most important indexes of Russia's economic structure gradually approximate the normal standard of market economies with equal per capita GDP.

It is clear that you cannot enter one river twice: some trends in structural transformation are almost irreversible. For instance, though in the early 1990's against the background of production fall, the process of increasing the share of employed in agriculture and forestry was in progress (1990 – 13.6%, 1995 – 14.9%), those indexes could not be brought to the level of the early 1970's (RSFSR – 18.9%).

Society always perceives adaptation to decrease in existing consumption levels extremely painfully, especially if it is followed with the failure of social institutes and settled norms of behavior, with drastic changes in reward distribution. The symptoms of this painful reaction are an increase in crime and mortality, decrease in average life span (table 22-23).

Table 22. Dynamics of the post-socialist crisis in Russia

	1990	1992	1993	1994	1995	1996
Mortality index (per 1000 persons)	11,2	12,2	14,4	15,7	14,9	–
Number of registered murders (thousands)	21,1	23,0	29,2	32,3	31,7	29,4
Number of registered suicides (thousands)	39,2	31,0	38,0	42,0	41,0	–

Source: State Statistics Committee

Only in 1995 did adaptation to changes start, and provided the beginning of volte-face in the dynamics of these indexes.

Table 23. Indexes of nation's health in Russia and other countries with comparable level of per capita GDP[58]

	Expected duration of life at birth (years)	Infant mortality (per 1000 births)
Russia	65	17,5
Thailand	69	36
Poland	72	15
Venezuela	71	32
Brazil	67	56
Czech Rep	73	8
Malaysia	71	12
Chile	72	12
Hungary	70	12
Mexico	71	35
Argentina	72	23

During the past few years, indexes of infant mortality didn't change appreciably (1990 – 17.4). This parameter, which, in fact, characterizes the level of development of national public health service, in Russia approximates the standard particular to countries with a corresponding level of development.

It is clear that the exhaustion of most efficacious energy resources deposits is nearly irreversible, and some results of late socialist growth have grave consequences, i.e. rapid growth of the ratio of external debt/GDP.

After having come a dramatic way of development in the XX century, having experimented with the socialist model and outlived its crash, Russia, on the verge of the XXI century, finds itself at approximately the same distance from the U.S. as it was in the century's beginning: in 1913 Russian per capita GDP, according to Meddison's calculations, amounted to $1,488, American - $5,307 (in USD of

[58] Infant mortality in Russia – State Statistics Committee, 1996, January-July. Life span – 1995, other countries – data by World Bank, 1994.

1990). In 1990, corresponding indexes amounted to $6,871 in the USSR, $21,866 in the U.S.[59]

Several conclusions:

1. Removing market mechanisms and substituting them with an integrated hierarchy allows for extending possibilities of maneuvering the savings rate rapidly, increasing the dimensions of resource redistribution from traditional agriculture, and obtaining a high growth rate of the share in industry and industrial production volume.

2. The crisis of this growth model starts after basic resources of traditional agriculture are drained. This is when all of its inner limitations become apparent – high power-consumption, low borrowing power of the process industry's production, absence of structural shift mechanisms within the framework of the economy's modern sector, low effectiveness of investments. The totality of these factors makes for a trend towards a rapid fall in the capital productivity ratio and in the economic growth rate.

3. Greater rigidity of resource limitations incites countries with poor resources to leave the framework of the socialist growth model during the early stages of development, when they still possess sizeable reserves of cheap man power with zero ultimate output in the traditional sector. Countries rich in resources have the opportunity to respond to the crisis of early socialist industrialization with increasing mineral export and agricultural import.

4. Leaving socialism with preserving economic growth is possible only at early stages of industrialization, when the potential of the traditional peasant sector is retained, on whose base market economy (parallel to that of the state) will grow (as it was in China). After basic reserves of the traditional sector are exhausted, any strategy aiming toward renewing market growth demands serious structural reorganization of the modern industrial sector and is inevitably followed by a fall in production volume.

5. Economic growth in the USSR and countries of EMAC in 1970-1980 was an attempt to cross the borders of inner limitations of the socialist growth model, and it bore an unstable nature. It paved the way for a sharp crisis and break-up of the system. The most important factors that caused instability of this system were bound up with the basic characteristics of a socialist economy, its low productivity, inability to produce competitive export from the processing industry, ensuring radical decrease in power-consumption production.

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[59] Meddison A. *Op. Cit.* P. 197, 200, 201.

6. Failure of the socialist model caused a drastic fall in production and consumption in former socialist countries to a level similar to that of the early 1970's.

7. Restoration of market regulators caused tendencies to approaching post-socialist economies' structural characteristics to indexes peculiar to market economies of the same development level. Though even nowadays, as will be shown in chapter 6, post-socialist economies differ in the great volume of resource redistribution through the state budget. High power-consumption of production and less share of the processing industry's export in GDP are peculiar to them, - it will take years and years and violent efforts to change the situation.

The conducted analysis allows us to understand the reasons of failure in attempts to keep production structures during oil growth in 1970-1980. These structures themselves were inwardly unstable and unbalanced; they couldn't exist without outer resource replenishment. Not preserving existing links and production structures, but rapidly reorganizing them to adapt to fundamentally different conditions of the post-socialist world is the most important prerequisite for stabilizing and renewing economic growth.